

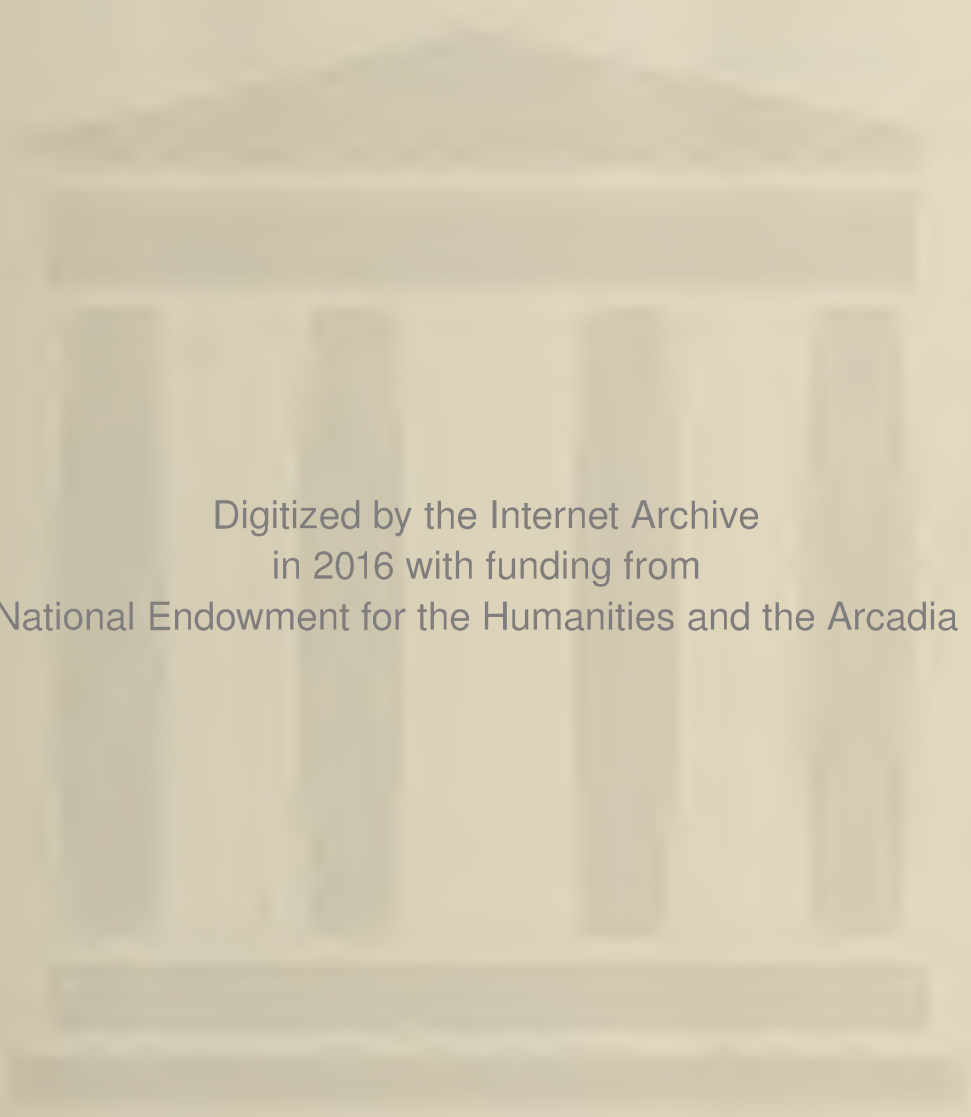
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I N D E X

TO

VOLUME XII

Southwestern Medicine

1 9 2 8

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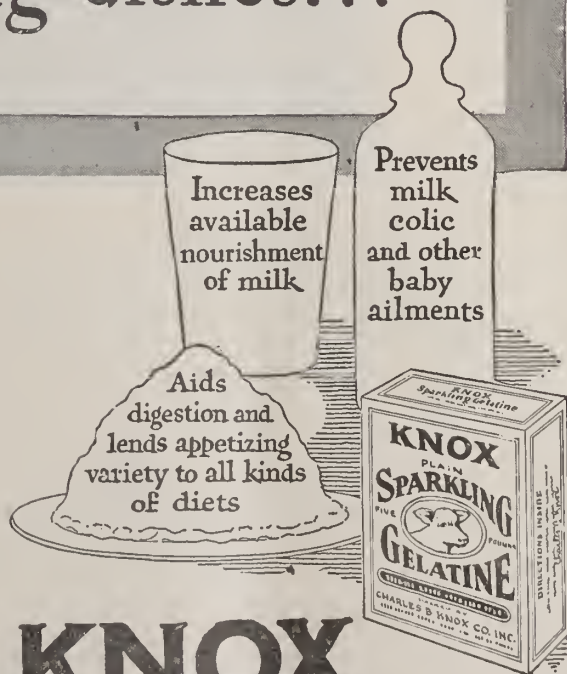
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GENITO-URINARY TUBERCULOSIS

FRANK HINMAN, M. D., F. A. C. S.
San Francisco, Calif.

Presented before the Thirteenth Annual Meeting of the Medical & Surgical Association of the Southwest, Clinical Congress, held at El Paso, November 2 to 5, 1927.

There are two distinct problems in genito-urinary tuberculosis that are not appreciated by the medical profession in general. The first concerns, primarily, renal tuberculosis and the second, genital tuberculosis, but in practice the two, for purposes of proper treatment and cure, need to be jointly considered. The prominent characteristics of tuberculosis of the genito-urinary tract are also insufficiently realized. The frequency is much greater than one would think unless statistics were studied, and the general morbidity is far in excess of the usual superficial estimation. Genito-urinary tuberculosis not treated surgically has, in fact, a higher death rate than pulmonary tuberculosis, although in such cases there is almost always an associated pulmonary involvement. It is for this reason that the third characteristic of tuberculosis of the genito-urinary tract should be universally recognized; namely, that, whether primarily renal or genital, the condition, with few exceptions, constitutes a surgical problem.

It may be well to enumerate briefly the facts that are known, at present, relative to renal and genital tuberculosis.

RENAL TUBERCULOSIS

Statistics are by no means infallible but give the best and almost only evidence that we have of the incidence of a disease. The incidence of renal tuberculosis may be better emphasized if estimated from statistics gathered in general autopsy records and clinically as the result of surgery. With respect to autopsy records, there are two groups, one with and one without pathological evidence of active tuberculosis elsewhere in the body. Compilations from general autopsy records in which no active tuberculosis was found in other parts of the body, shows a

varying incidence of renal tuberculosis of from one to five per cent. Similar statistics gathered from autopsy records which show an active tuberculosis of other organs show an incidence of from ten to twenty per cent of renal tuberculosis. Records of urological surgeons reporting the conditions for which nephrectomy has been performed show that, in thirty to thirty-five per cent of the cases of total nephrectomy, the kidney has been removed on account of tuberculous infection. This shows the fairly high incidence of renal tuberculosis in comparison to other urological diseases of the kidney.

One of the most important clinical facts affecting the treatment of renal tuberculosis is that the involvement begins in one kidney and does not involve both simultaneously. Clinical evidence unanimously supports the belief that a bilateral renal tuberculosis, except in the case of a miliary type of infection, is always a late manifestation of the disease. It is on the basis of this belief that early nephrectomy effects a cure. An examination of statistics—both pathological and clinical—supports this view. Autopsy records in cases dying of tuberculosis, show a finding of unilateral renal tuberculosis in fifty-two per cent, and of bilateral involvement in forty-eight per cent. Naturally, if such a finding persisted irrespective of the early or late stage of the disease, nephrectomy would effect few cures in renal tuberculosis. In marked contrast to this pathological finding, clinical statistics show an average incidence of unilateral involvement in eighty-six per cent of all cases and a questionable bilateral infection in only fourteen per cent. This fourteen per cent incidence of bilateral involvement is questionable because it is based on clinical evidence, which is often unreliable, and not on the incontrovertible pathological finding. In the first place, some of these bilateral reports are based on a positive guinea pig finding for the supposedly uninfected side without an associated evidence of pus, blood, loss of function or pyelographic change. The pro-

longed dispute of the ability of a normal kidney to excrete living organisms without itself being injured thereby is still with us, but the evidence is fairly strong that a healthy kidney may filter living tubercle bacilli or other organisms brought to it in the blood stream just as readily as it filters other solid particles, such as indigocarmine, etc., without being infected by this passage. Furthermore, the not infrequent occurrence of reflux of bladder contents up a healthy side is fully realized, particularly after the insertion of a catheter; and in the case of vesical tuberculosis or of a bladder content of tuberculous material from the opposite infected kidney, it is readily seen how the collection from a normal side may be contaminated. On the other hand, there are, no doubt, instances of early tuberculous involvement on a supposedly healthy side that have been overlooked at the time of an urological study. The estimation on clinical evidence of an eighty-six per cent unilateral involvement is probably fairly accurate.

Now, from the clinical standpoint, these cases are of two types: Those in which the renal involvement is found clinically to be primary—that is to say, there is no clinical evidence of active tuberculosis elsewhere in the body; and those in which it is secondary—that is, with active tuberculous lesions elsewhere. From a strictly pathological standpoint of course there is probably no such thing as primary renal tuberculosis, inasmuch as all infections of the kidney with tubercle bacilli are probably secondary to a tuberculous focus elsewhere which may have completely healed so as to leave no evidence of its existence. Clinically, sixty to seventy per cent of the cases of renal tuberculosis are of this so-called primary type of involvement, and it is because of this high incidence of a primary type of involvement that surgery becomes so efficient. The statistics also show that in secondary renal tuberculosis, in which the involvement of the kidney is associated with active lesions elsewhere in from thirty to forty per cent of the cases, ten to fifteen per cent of this thirty or forty per cent have pulmonary involvement, whereas as high as fifty to sixty per cent of this small group have an associated genital involvement. The clinical statistics vary considerably but, on an average, the bladder will show a tuberculous lesion in from twenty-five to fifty per cent of cases of renal tuberculosis. The significance of these statistics is best emphasized when considered in association with results of treatment,

as they clearly demonstrate that the best results are obtained in those cases in which the kidney removed is of the primary type or is primary in the sense that there has been no spread of the process to any other portion of the urino-genital tract.

Still a further important statistical fact is that genito-urinary tuberculosis attacks individuals in the prime of life. Over eighty-five per cent of all cases occur between the ages of twenty and fifty years of age. This shows the great economic importance of the early treatment and cure of this type of tuberculosis. (Table I)

TABLE I.
AGE (SURGICAL CASES).

Under 20	15%	
21 to 30	} 70%	} 85%
31 to 40		
41 to 50		
51 and over		
	15%	

It will not be possible here to present in detail the symptomatology of renal tuberculosis. In the great majority of cases the earliest symptom originates from the bladder and this is true even before there has been any tuberculous infection of the bladder itself. These patients seek relief because of frequency or burning on urination. The next common complaint that brings the patient for examination is the presence of blood or cloudiness in the urine or the finding of this by the physician. The characteristic of a pyuria due to genito-urinary tuberculosis is the absence of the common pus organisms and the fact that bacteriological cultivation in the vast majority of cases gives negative findings, inasmuch as the tubercle bacillus will not grow on ordinary culture media. There are, of course, many cases in which secondary infection with common pus organisms, such as colon bacilli, streptococci or staphylococci, has occurred, but these are the exception. It is rare indeed in early cases, or as the initial symptom, for patients to complain of backache of renal origin or to show the other general evidence of tuberculosis such as fever, loss of strength, weight, etc. The majority of these patients are well nourished and in their full vigor.

GENITAL TUBERCULOSIS

There are two very distinct problems in genital tuberculosis, one with respect to its pathogenesis and the other with respect to the treatment best suited to it. (Table II)

TABLE II.
GENITAL TUBERCULOSIS.

Pathogenesis
Group I—Primary in epididymis versus
Group II—Primary in prostate or seminal vesicle.
Treatment
Simple epididymectomy versus
Radical removal of both epididymi, vasa deferentia and seminal vesicles.

There has been a prolonged and active dispute over the primary focus of tuberculosis of the genital tract, one school presenting arguments and evidence which would seem to point to the epididymis as being the primary focus, and another school presenting arguments and evidence even more strongly suggesting the primary focus as being in seminal vesicle or prostate. The problem may be more clearly outlined if the two sides are presented in as unbiased a way as possible as follows:

TABLE III.
EVIDENCE OF GROUP I.

1. Primary tuberculous epididymitis occurs independently.
2. Entire genital tract generally involved.
3. Appearance of age of a lesion no criterion of priority.
4. Secondary opposite epididymitis may be hematogenous.
5. Lesions in epididymis may have been overlooked in cases of supposedly primary prostatic and vesicle lesions.
6. Improvement or arrest of the prostatic and vesicular lesions after epididymectomy occurs in majority of cases. (Barney).
7. Tuberculosis of prostate and vesicles alone practically unknown clinically. No symptoms. (All cases seek relief for epididymitis).

TABLE IV.
EVIDENCE OF GROUP II.

- I. Clinical:
 1. Tuberculous epididymitis alone is rare.
 2. Tuberculous nodules of prostate or vesicle are more frequent without evidence of the disease in the epididymis.
 3. Symptoms of prostatitis or vesiculitis commonly precede the appearance of tuberculous epididymitis.
 4. Earliest evidence of epididymitis is in globus minor. Analogous to acute infections known to arise by extension from the urethra. Late lesion in opposite epididymis is in globus minor.
- II. Pathological:
 1. Lesions of epididymis alone rarely found, whereas tuberculosis of prostate and vesicles unaccompanied by lesions in epididymis are frequently reported.
 2. When found associated, lesions in prostate and vesicles generally have appearance of being older.
 3. Nodules in lower pole of epididymis usually appear older than those of globus major or body. (First to soften and break down).
- III. Experimental:
 1. Micro-organisms rapidly absorbed from urethra and carried to epididymis.
 2. Epididymitis (tuberculosis) experimentally pro-

- duced after injury to epididymis by inoculating the urethra.
3. Travel by lumen of vas (antiperistalsis) or by lymphatics of vas. (K. M. Walker).

The above arguments as a rule are self evident and require no explanatory discussion. They have existed without much modification for many years. It is of interest that at the last International Congress of Urologists held at Brussels (1927) genital tuberculosis was the main subject of discussion and that the various arguments above presented were again advocated, those of group I by Dr. Barney of Boston who has been its faithful champion, and those of group II by Drs. K. M. Walker of London and Carlo Gamberini of Bologna and Pietro Marogna of Sassari. In addition to the studies presented at this time, Young of Baltimore, from a most careful study of his own cases over a period of many years, has long maintained that the seminal vesicle or prostate is the primary focus of localization in the great majority of cases.

Before taking up the significance of these studies in the treatment of the disease it may be well to present the rather unsatisfactory statistics as to the incidence and extent of tuberculosis in the genital tract. In the first place, genital tuberculosis is not nearly so frequent as renal tuberculosis. It would seem to have an average incidence of 0.5 per cent (renal one to five per cent). A similar condition, however, exists here as in renal tuberculosis, namely that a very high percentage of the cases, so far as the clinical evidence goes, are primary in the genital tract. Of Barney's carefully studied 154 cases, 44.2 per cent were primary; that is, there was no clinical evidence of tuberculosis elsewhere in the body. It is probable, however, that autopsy studies of these cases would have revealed healed or hidden active lesions elsewhere. In about fifty-five per cent of cases there was, however, clinical evidence of active tuberculosis, of which the lungs and kidney were most frequently involved (Table V). Other statistics than Barney's however, show quite a marked variation with respect to the incidence of secondary genital tuberculosis, active lesions being reported elsewhere in from forty to eighty-three per cent of the cases. An interesting study in this connection are the incomplete reports from tuberculous sanatoria, in which, unfortunately, complete urological records are exceptional. Sanatorial records indicate that pulmonary tuberculosis is cured in from sixty-five to seventy per cent of cases, whereas, in that small group in which the pulmonary involvement is associated with a genito-urinary lesion, cure in only

about twenty per cent is reported. In other words, the morbidity of properly treated pulmonary tuberculosis is about thirty per cent, whereas the morbidity of pulmonary tuberculosis associated with urino-genital lesions is as high as eighty per cent. These statistical facts may be visually emphasized, as in Table V.

TABLE V.
INCIDENCE OF GENITAL TUBERCULOSIS

Variously estimated at about	0.5%
(renal 1 to 5%)	
Primary at autopsy—	probably none.
clinical	50 to 17%
(Barney 154 cases)	44.2%
Secondary (active lesions elsewhere)	40 to 83%
Lungs, kidney, bone, glands, joints, larynx, meninges, peritoneum, middle ear, ischioanal fossa.	
Sanatoria records (incomplete).	Morbidity
Complete study rare even with pyuria.	
About 65 to 70% of total hospital cases, cured....	30%
Only 20% with renal or genital lesions, cured....	80%

The extent of a disease in the genital tract varies quite markedly, which would be expected in view of the difficulties of diagnosis. An epididymitis is quite obvious as compared to lesions in the prostate or vesicles. Nevertheless, a simple epididymitis has been clinically reported in only from ten to fifteen per cent of the cases. Involvement of the seminal vesicles alone shows a somewhat higher incidence having been reported in from fifteen to twenty per cent, whereas lesions in both have been found in sixty-five to seventy per cent. It is rather important to note that these same statistics show an associated lesion in the kidney in about fifty per cent of all cases.

The initial or early symptom of genital tuberculosis is not nearly so definite as in renal tuberculosis. The commonest finding, of course, is epididymitis evidenced by nodules that would seem invariably to involve first the globus minor. As shown in the accompanying illustration, the globus minor shows involvement in 100 per cent of cases,

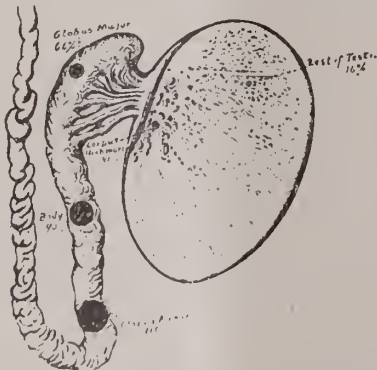


Fig. 1. Diagrammatic representation of the type of extension of tuberculosis of the epididymis and testicle. (Murphy's Clinics).

the body of the epididymis in ninety per cent and the globus major in only sixty-six per cent. (Fig. 1). In other words, in every tuberculous epididymis that shows tubercles in the globus major or body, there will also be tubercles in the globus minor. Those cases with primary involvement of the vesicle or prostate may show an early disturbance of urination or some abnormality of the urine, but the most valuable diagnostic evidence of tubercular involvement of the deeper genital structures is that obtained on rectal palpation, nodulation being the characteristic change.

THE TREATMENT OF RENAL TUBERCULOSIS

In spite of the occasional report of spontaneous healing of renal tuberculosis, it is a universal belief that early nephrectomy is the method of choice in all cases in which the condition clinically is unilateral. In those exceptional cases in which spontaneous healing has occurred, subsequent autopsy findings invariably show that this healing has been by complete destruction of the secreting portions of the kidney. These are the so-called cases of autonephrectomy. A recent pathological study by Medlar¹ is of considerable interest in this connection. He has made detailed microscopic studies of the kidneys removed from individuals dying of tuberculosis and gives evidence which would seem to show that in some portions of these kidneys there are healed areas and that in practically all cases there has been a bilateral involvement. His conclusion, however, that because of this evidence renal tuberculosis clinically is always bilateral, may be questioned, inasmuch as the pathological finding in a series of cases that have died of tuberculosis is not comparable to clinical material in which the lesion is active and early. It is not possible accurately to analyze statistics that may be gathered with respect to the actual results of nephrectomy for renal tuberculosis. (See Table VI). For instance, the surgical mortality before 1910 averaged over eighteen per cent and after 1910 only a little over four per cent. Statistics are so incomplete that the estimation of fifty-eight per cent cured cannot be taken as at all accurate.

TABLE VI.
RESULTS OF NEPHRECTOMY.

(11,123 cases reviewed).

Bladder involvement	54.9 %
Pulmonary involvement	21.16 %
Genital involvement.....	22.9 %
Surgical mortality (to 1910).....	18.82 %
Surgical mortality (after 1910).....	4.39 %
Dead (time not stated).....	20.2 %
Well (time not stated).....	58.1 %

In conclusion, so far as renal tuberculosis

is concerned, early diagnosis and, in a suitable case, immediate nephrectomy is the proper method of treatment. The results that have followed removal of the more advanced lesion in bilateral cases, have not been at all satisfactory. The surgical mortality in this type of case is very high, many of these cases dying soon after operation from generalized tuberculosis, which is often of the miliary type, and no definite cures having been reported. In connection with results following nephrectomy after involvement of the bladder has occurred, they are not so encouraging as those in which the kidney was removed before spread of the disease elsewhere. Clinically, almost 100 per cent of the latter cases are cured, whereas probably less than sixty per cent of the former are cured. The persistence of bladder symptoms is sometimes secondary to lesions in the ureter that have been left on the infected side, and often in these cases subsequent ureterectomy is indicated. In other cases there is a deep-seated involvement of the walls of the bladder, which so limits its capacity as to render the individual miserable on account of frequency and pain. What becomes of more serious consequence, is spread of the tuberculous lesion of the bladder about the ureteral orifice of the uninvolved side or to the lower ureter on this side. An involvement here often produces sufficient contracture to obstruct the urinary outflow from this uninvolved kidney, producing gradual dilation of the ureter and a progressive hydronephrosis on this side. In three such cases we have relieved obstruction and the misery coincident to bladder involvement, which has failed to respond to prolonged treatment, by ureterosigmoidostomy. In the first case in which this was done there was an immediate restoration of function—which had become diminished to less than five per cent phthalein in two hours—to an average of fifty per cent, and complete relief of bladder discomfort. But this patient, over four years later, formed a large ureteral stone for which she sought relief only after the incidence of uremia, and autopsy showed that the remaining kidney, whose ureter had been draining into the sigmoid for over four years, had no tuberculosis. The second case lived over two years in comfort and died of an acute bilateral pneumonia unrelated to his tuberculosis. The third exactly similar case is now living and well more than eighteen months after the transplantation of the hydro-ureter to the large bowel.

TREATMENT OF GENITAL TUBERCULOSIS

In spite of the predominance of evidence

in favor of the theory of pathogenesis which points to the seminal vesicle and prostate as the primary focus, there remains a problem of treatment that is often extremely difficult to solve. In genital tuberculosis, decision as to the method of treatment must be made on the basis of the conditions and findings in each individual case and no uniform rule of procedure can be advocated, as in renal tuberculosis. The strongest argument of those who believe that the lesion in the genital tract is primary in the epididymis is the fact that, after simple epididymectomy, clinical evidence of an advanced lesion, often in the seminal vesicle and prostate, will gradually disappear, pointing to retrogression and healing of this deep-seated lesion after simple epididymectomy. There are, however, other cases in which these deep-seated lesions continue to advance and spread. Probably no one advocates radical treatment of all cases of genital tuberculosis, but there are a number who believe that the best results will be obtained only when such radical treatment is applied to properly selected cases.

It might be well to quote here the conclusions of the men who reported on this subject at the International Congress. Barney says, "While many good results are reported after the radical operation, these results are no better than those reported after epididymectomy. The opinion of most observers is that, following epididymectomy, the disease found before operation in the seminal vesicles and prostate not only ceases to progress but actually retrogresses to the point of clinical cure." Gamberini and Marogna say: "In the actual state of knowledge, the treatment of genital tuberculosis cannot be based on pathogenic theories of primary localization, or of diffusion or on statistics of cures. We must examine, case by case, for it varies according to age, constitution, degree of infection, evolution, and social condition. It must not be forgotten that genital tuberculosis is not only a local lesion but that the whole body is implicated and, consequently, the treatment should be both local and general. The most radical operations based on the primary localization of the infection in the superior zones of the genital tract, while logical in appearance, must not be performed because of their gravity and because it has not yet been proven that such operations effect cures and stop relapses." And, finally, Kenneth M. Walker concludes: "Of the surgical procedures, I consider epididymectomy to be the operation of widest application. Although the more radical op-

eration of total extirpation of the seminal tract is based on a correct understanding of the pathology of the disease, I still regard it as a measure to be adopted only in special cases; namely, those in which regression of the central lesions has not followed epididymectomy, and also in the treatment of those



Fig. 2. Photograph of tuberculous seminal vesicles, vasa deferentia and epididymides removed in case No. 14 (personal). The vasa necessarily had been cut and divided at the time of operation, which is not shown in the photograph. The epididymides were removed first and examined to confirm the diagnosis, and the patient placed in the extreme lithotomy position. The vesicles and involved area of the prostate were removed, and by gentle traction on the vas at the inguinal ring against counter traction on the vas still attached to the seminal vesicle in the perineum, it was loosened and pulled out through the perineum on each side.

patients with marked involvement of the prostate and vesicles, whose mode of life handicaps them from the outset in their fight against the tuberculous invasion."

This gives a fairly complete resume of the opinions generally held. It must at once be appreciated that genital tuberculosis is a serious disease and carries a high death rate. So far, relatively few cases that have been treated by the so-called radical method have been reported. Young's series is the largest, twenty-four cases, with one surgical death and a cure—of those cases in whom the operation had been performed long enough to fairly state—in fifty-four per cent. Quinby has reported seven cases, all of such recent date as not to permit an analysis of the percentage of

cures, but in all of whom the immediate results were excellent. The writer has had fourteen cases, of which the same may be said as just stated respecting Quinby's series. (See Table VII). Obviously, comparison of results obtained by the radical method and by simple epididymectomy will always be unfair to the former because it will necessarily be performed for advanced cases only, no one advocating removal in toto of seminal vesicles and vasa when there is no clinical evidence of their involvement. In a properly selected case which, as Walker has stated, is handicapped otherwise because of inability to get all of the accessory sanatorium care, immediate radical removal of the seminal vesicles, the involved area of the prostate and the epididymides seems the logical procedure (Fig. 2) and results so far obtained by the few who have used this method justify this conclusion.

TABLE VII.
TREATMENT.

Disease is rapidly progressive—100% morbidity.

I. Epididymectomy.

4 to 10 years survival.

40 to 80% cures reported.

II. Radical Operation.

Author	Cases	Death	Cured
Young	24	1	54%
Quinby	7	0	Excellent immediate
Hinman	14	0	Excellent immediate

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FRACTURES OF THE SKULL, THORAX AND SPINE.

(Symposium of the December, 1927, Staff Meeting of St. Joseph's Hospital, Phoenix, Arizona).

FRACTURES OF THE SKULL.

R. J. STROUD, Tempe, Arizona.

Eight cases of skull fracture have been given me for discussion, and these are fairly illustrative of most classes of skull fracture.

When injury to the skull is sustained, whether fracture occurs or not, the well-known principles or facts, gathered by Cushing from his experiments, will apply; these are:

(1) Under compression, the obstruction of the circulation begins on the venous side and extends to the arterial side; the venous blood is kept inside the cranium, stagnates and adds to the compression and hydrocephalus.

(2) After the veins are compressed, the

capillaries and arterioles are gradually emptied, thereby bringing about anemia, exactly at the moment when the force of the compression exceeds the blood pressure.

(3) The anemia in the medulla stimulates the vasomotor center, which drives the blood pressure above the compression level. If compression be elevated still higher, the cycle is repeated.

From this, one of two results occurs: either the compression is gradually lowered, with an attendant lowering of blood pressure; or the compression will increase until the vasomotor center gives up the struggle and the blood pressure drops suddenly, leading to a fatal issue.

All treatment should be based in the facts that all symptoms of pressure depend on circulatory disturbance and not on compressibility of brain tissue. Bearing these facts in mind, Dowman has classified the respective indications for treatment into the following classes:

A. Massive brain injury with rapid exhaustion of the medullary centers and death in from one to several hours.

Treatment: Operation contraindicated as prognosis is hopeless.

B. Definite evidence of middle meningeal hemorrhage.

Treatment: Immediate operation is indicated and imperative. The clinical picture of this class is as follows:

1. A free interval of consciousness, often momentary or of short duration. (In children several days may elapse, so be careful not to let them from under observation too soon).

2. A slow bounding pulse, followed by a slightly rapid and small pulse.

3. Stertorous respiration, as contrasted with the superficial, shallow respiration of concussion.

4. The gradual development of hemiplegia or contralateral convulsions.

Subtemporal decompression must be done quickly with ligation of the bleeding artery, if possible.

C. Simple or compound depressed fracture with localized brain contusion, with or without indriven bone fragments.

Treatment: Debridement of bone. Removal of clot or contused brain carefully, with or without replacement of bone.

D. Classic manifestations of rapidly increasing intracranial pressure which is being compensated.

Treatment: Borderline cases; best method is to do a subtemporal decompression with or without wick drainage.

E. Definite evidence of brain injury which shows no classical findings but which

shows a slowly increasing brain pressure with changing pulse rates, headaches, etc.

Treatment: This is the large class of cases which respond to hypertonic solutions of magnesium sulphate or sodium chloride. Most of them respond to one-half ounce doses of magnesium sulphate (saturated solution) by mouth every two hours for forty-eight hours. Children are given proportionately smaller doses. Intervals of dosage are gradually lengthened until the seventh to the tenth day. Care should be taken that magnesium sulphate poisoning does not result. This can be prevented by calcium chloride intravenously. In this case sodium chloride is substituted intravenously beginning with 50 c.c. of 30 per cent solution, following by 10 c.c. intravenously of magnesium sulphate.

F. So-called concussion cases, with no evidence of gross change. Consciousness returns in a few hours and patients are mentally clear. No findings except unconsciousness.

Treatment: Free purgation and quietness only.

G. Depressed fracture of mild degree giving rise to no symptoms whatsoever.

Treatment: Because of late development of brain cyst and late pressure symptoms, such patients should be operated upon, by elevation of bone and cleansing wound of clot, etc., as in class C.

H. Strictly does not enter into a discussion of fractures, but calls attention to the fact that scalp laceration without underlying bone damage should be cleaned out and sutured carefully so as to avoid the complication of brain abscess.

CASE I.

No x-ray. Diagnosed fracture of base of skull. Here is a case of a 63-year-old man, unconscious when admitted, with labored breathing, dilated pupils but with a slow response to light, sluggish reflexes and blood discharging from both ears. Admitted April 3rd. On the fourth he was irrational with pupils less dilated, pulse slowing and restraint necessary. On the fifth he gave the impression of knowing and answering questions; pulse more rapid, and restless. Sixth, muttering, pulse weaker and more rapid, but he retained liquids. Seventh, progressively worse, death on the eighth.

Here is a typical case of class B. Unconscious, lucid interval, pulse lowering, then raising, and then symptoms of progressive compression until death.

If Dowman had been followed, operation would have been done on the second day when the pulse became slower and the lucid interval began, or failing to get operative consent, some hypertonic treatment should have been instituted. As it was, the patient was treated expectantly and except for morphine on the seventh, was treated as a class F where rest only is indicated.

CASE II.

Aged 15. Admitted March 4th with diagnosis of

scalp avulsion; fracture of right ankle. (Final diagnosis proven by x-ray findings gives a skull fracture, small, lineal, back of temporal bone with no depression.) Male, unconscious, bleeding, unequal pupils. Right dilated and does not respond to light. Avulsion of two-thirds of scalp from neck to forehead.

This case resolved itself into one of compound fracture with some contusion of brain. It falls in C, but x-ray showed so small a fracture that expectant treatment was advisable, and the real condition of shock, from a multitude of injuries and blood loss, was taken care of by glucose and saline intravenously with hemostatic serum to stop oozing and loss of blood. This case was handled expectantly and carefully and cleared up promptly after the shock was controlled. This took several days. I might here add that there is always the problem of shock in all head injury cases, and care in operative procedures, as well the indications for operation, must be dependent on shock. It is inadvisable to give hypertonic solutions in shock cases. In all classes shock may be a factor.

This patient was readmitted August 5th for the removal of a sequestrum of bone from outer table of left frontal sinus which left a discharging sinus. This was missed by the x-ray taken at the time of original injury, which indicated that it is wise not to place our whole reliance on x-ray.

CASE III.

Male, aged 44, admitted Dec. 12, 1926, with diagnosis of skull fracture; unconscious, face and eyes swollen, blood from ears, pupils irregular; right pupil widely dilated and does not react to light; left reacts to light. Paralysis of body on one side. X-ray shows fracture of zygoma, but with notation that complete report could not be given as patient was too restless for thorough examination.

Treatment: This patient was never conscious, and falls closely to class A with a leaning towards class B. Supportive treatment was given, mostly intravenous glucose, and morphine. When the pulse fell on the third day, death was approaching. A hopeless case from the start with massive brain injury. Too low to operate at any time. The surgeon made the note that death would have resulted with or without operation or hypertonic solutions.

CASE IV.

Male, age not stated, admitted Sept. 24, 1926, with diagnosis of skull fracture of temporal and anterior fossa of base, with other injuries of right shoulder. Bleeding from nose, loss of hearing right ear, left pupil dilated and reacting slowly, right eye bulging and ecchymosis over right temporal area. Babinski present on right foot. No x-ray.

Treatment was for shock, although pulse was from 54 to 60. Glucose solution by rectum given in large quantities. There never was any proof of fracture and after initial unconsciousness he fell into Class F. Was able to leave hospital in eleven days.

CASE V.

Male of unknown age, admitted to hospital April 10, 1926, with diagnosis of skull fracture. No abnormal reflexes, never unconscious; pupils reacting to light and equal. Right eyelid swollen and nasal hemorrhage. X-ray does not confirm diagnosis of fracture. Temperature and pulse low on admission but normal next day. Principal complaint, headache and nausea. Discharged in seven days and sent home to rest. Falls under class F.

CASE VI.

Male, aged 30, admitted June 8, 1926; diagnosis of skull fracture and rupture of longitudinal sinus. Lacerated wound of vault with equal pupils re-

sponding to light and depressed fracture of vault. A class C case.

Treatment: Operation and removal of loose button of bone and pressure sponge to control sinus bleeding. Recovery uneventful. Handled just as Dowman asks in class C. Pulse was a little low for a few days. Discharged in twelve days.

CASE VII.

Female, aged 2, brought to hospital for observation following a fall. X-ray disclosed a V-shaped fracture of left occipital region. After two days, did not have convulsions or other signs of compression, and went home for further observation. It is wise to watch such cases for some time afterwards.

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CASE VIII.

Male, aged 22, entered hospital June 23rd with diagnosis of skull fracture; pupils equal and react to light; slight bloody discharge from ear; contusion in parieto-occipital region; unconscious. X-ray shows linear fracture of parietal bone from parieto-occipital suture forward, on right side, lower part of parietal bone. No basal fracture.

Treatment: He regained consciousness quickly, showed no great pressure signs, although pulse was variable, at times, on the same day, from 66 to 86. Felt good, little headache. Treated by rest and given liquids. Falls into class F. Treated as of that class. Left hospital very well in twelve days.

SUMMARY OF CASES.

No.	Age	Sex	Unconscious	X-ray	Operation	Class	Result	Class Treatment
1.	63	M.	Yes	No	No	B	Death	F
2.	15	M.	Yes	Yes	No	C	Recovered	Shock-F
3.	44	M.	Yes	No	No	A	Death	A
4.	N.S.	M.	Yes	No	No	F	Rec.	ShockF
5.	N.S.	M.	No	Neg.	No	F	Rec.	F
6.	30	M.	?	No	Yes	C	Rec.	C
7.	2	F.	No	Yes	No	F	Rec.	F
8.	22	M.	Yes	Yes	No	F	Rec.	F

FRACTURES OF THE RIBS.

S. I. BLOOMHARDT, M. D.

Phoenix, Arizona

A very superficial glance at the anatomy of the ribs, perhaps, might help us in the study of fractures of these bones. The upper seven ribs, you will remember, on each side articulate with the sternum. The eighth, ninth and tenth ribs are connected by the costal cartilages anteriorly, but the eleventh and twelfth ribs have no anterior attachment,—the so-called and well-named floating ribs. Thus, it takes no particular imagination to understand why the lowest ribs are less liable to fracture than those attached with cartilage, and those attached with cartilage less liable to fracture than those of bony attachment. Again, of those with bony attachment, nature is rather ingenious by protecting somewhat the upper two ribs by the clavicle, those stout bones of many hard traumatisms; at least, it protects them from blows of direct violence which account for no small percentage

of the bad fractures. A great depression of the shoulder, however, may bring this same protecting clavicle to bear directly upon the first ribs and this may, in turn, be a cause of fracture. The ribs suffering most frequently, then, from fracture you can well understand are those from the fourth to ninth, as the upper ribs are better protected and the lower ribs more movable. Again, the ribs, owing to their shape, elasticity and mode of attachment, readily bend and as readily, I may add, recover shape and thus again withstand considerable force without breaking. Also the ribs, in early life, are very elastic and even though fractured, it is most often an incomplete fracture. In childhood, they are so elastic that a break is extremely rare. Notwithstanding these facts, the situation of the ribs so exposes them that in sixteen per cent of all fractures, these bones were involved and, since the day of automobile, even a higher percentage. I was asked to review the cases of fractured ribs admitted to this hospital but, as you all know, unless it is a very severe chest injury, such a case is not referred to the hospital. I was furnished with twelve rather interesting cases and we will study these along with some other matter.

CAUSE

The common cause is direct violence; the less common causes by indirect violence, as compression of the chest, in which case the rib breaks at the most convex part, or near the angle; by violent muscular action, such as occurs in coughing or straining; this latter cause I admit to be rare. Recalling our teaching as to causes or reading text books not up-to-date and then reading histories of present day, the causes of fractured ribs given will differ greatly. Today the automobile accident is the one big outstanding cause, in over seventy per cent of the cases in tonight's study, and I imagine, were I to study the office records of you all, possibly, a good percentage of rib fracture cases would also be due to auto accidents. Since the automobile has become so much a routine of life and speed such a dominant feature in our make-up, fractured ribs are much more common, much more severe, and complications more varied, in this present era.

Of the twelve cases reviewed, two were caused from falling off scaffolds; one caused from fall off top of street car following electric shock, in fact, was knocked from the roof of the street car by electric shock; one case struck accidentally (just what with I do not know, as it is not stated in history); the others were automobile ac-

cidents or associated with automobiles. An important point in all traumatic histories or hospital records is a clear statement of the cause. All the cases studied had definite history as to cause, with the exception of one; this I consider very good.

THE SYMPTOMS

In the partial fractures, there may be no symptoms. Upon forcible expiration, as in sneezing, coughing, laughing, crying or in breathing hard, pain may be felt at the site of the fracture, or localized pain may be increased by movements of the chest or pressure over the sternum. Grunting respiration is, I think, a rather characteristic symptom which you all know, with a short and catchy respiration. In only the occasional case does one find deformity or abnormal mobility. Crepitus is frequently absent; it is obtained by placing the hand or the ear over the point of greatest tenderness while the patient takes a deep breath, or by alternating pressure on the bone on either side of the fracture. The attitude of the patient, if observed closely, is often characteristic; it is a very deliberate attitude, guarded and stiff, and in severe cases, I once heard it aptly described as suggesting the movements of a child with acute caries of the dorsal spine. Hemoptysis suggests lung injury. Hemoptysis and cellular emphysema without an external wound, prove injury to the lung. Also, if air gathers in the subcutaneous tissue and there is no wound on the surface, it is proof of rib fracture with lung damage. In such cases the lung has been penetrated by a fragment and air has been forced into the tissues. This condition is recognized by great and growing swelling, which crackles when touched and is called cellular emphysema. X-ray is of the greatest help in diagnosis. Of the twelve cases studied five were not x-rayed; three of these showing definite physical symptoms of fractured rib, without complications, and relief of symptoms by classical treatment. X-ray reports showed several interesting cases. No. 12269, fractured clavicle and fracture of first, second, third, and fourth ribs—the third rib having two fractures, and line fracture through scapula; remarkable to have so much breakage without lung complications, but x-ray report indicated no marked displacement of fragments, which is possibly the explanation. In contrast, in Case 12195, x-ray shows fracture of sixth, seventh, eighth, ninth and tenth ribs, of which the eighth, ninth and tenth each are fractured in two places, with some displacement of fragments; this case was complicated by cellular emphysema, punctured

lung, extreme shock, etc. Both are rare cases, as we seldom see fracture of first rib and not often of the eleventh and twelfth ribs, which bears out a previous statement about the automobile's place in fracturing ribs. Again, Cast 10231 shows fracturing tips of tenth and eleventh ribs; Case 10293 fractures of ninth and tenth ribs; Case 12420 fractures of third, fourth and fifth ribs with displacement, cellular emphysema and bloody expectoration. In criticism of histories. I believe the records of symptoms are much too scanty and hurried for the purpose of study; I would not consider them of great value. X-ray reports are good.

TREATMENT

The treatment of fractured ribs is more or less classical, i. e., immobilization of the affected side; if necessary, additional splinting with morphine or other form of opiate of choice. The usual method of immobilization is with adhesive plaster. In the male, the chest should be shaved, an important point, too frequently neglected, the result being an uncomfortable patient and a dread of having straps removed and others applied, a point we should guard against. A piece of lint placed over the nipple, if it is in the line of strapping, is also a nicety and comfort for the patient. Adhesive plaster strips three inches wide and long enough to extend about three fourths around the chest are applied from below upwards, during expiration, each strip overlapping the preceding one. If strapping increases the pain, it should not be employed, as the ends of the bone are probably driven inwards; such cases should be confined to bed with a compress between the shoulders. Case 12420, automobile accident with fractures of the third, fourth and fifth ribs, and some displacement, was strapped and pain increased being relieved only when the straps were removed. Fracture of rib with visceral injury, is highly dangerous and should be treated for complications as they arise, according to best medical principles. A cough mixture, if necessary, containing an opiate, is a great help during the first week. If there is great displacement that is irreducible by pressure, an incision and elevation of the parts and immobilization by suture are to be considered. Union occurs in about three weeks. If there have been any pleural or lung complications, great precaution should be exercised in the after care. One should always examine a patient with fractured rib for associated fractures. In this small series we have associated fractured clavicle, fractured scapula, fracture of forearm, fracture of skull, three jammed shoulders, and most all with multiple body bruises and lacerations.

The treatment of this series of cases is very good and satisfactory. They were all strapped and eleven give notes of relief upon strapping. The odd case we have spoken about, in which strapping increased his pain, due to pressing in of fragments. Case 12195 had a very stormy convalescence, but she was an alcoholic and had multiples of everything, besides a temperament.

In patients over fifty years old "neuralgic pains" at the seat of fracture will sometimes persist for several weeks after the fracture is united. This may be relieved by the application of moist heat to the affected part and by counter-irritation of a more vigorous kind. Also, the use of infra-red I have found to be quite an adjunct in promoting healing and making patients comfortable.

Of the complications, rupture of the lung is the most serious and causes one the most anxiety. Hemorrhage from the internal mammary or intercostal artery may be controlled by ligation, or by pushing a gauze sac between the ribs and filling the inner end of the sac with gauze so that, when drawn upon, it will make pressure from within outwards. Excepting extensive wounds, bleeding from the lungs is rarely fatal, and bleeding is checked by collapse of the lung. If the lung is injured, it is usually accompanied by great shock.

The complications in this series, are very interesting, but only one proved of serious nature; that one was a fractured skull with fractured ribs secondary. There is a case in the hospital now who has had many complications and I hope we may hear about it in discussion. Case 12420 had lung puncture; death—bronchitis to pneumonia. Case 12269 had fractured clavicle, four ribs fractured, fracture of scapula. Case 10422 had fractured clavicle and contusion of left shoulder. Case 11618 had fractured base of skull resulting in death. Case 9114 had fractured ulna and radius. Case 9334 had very bad bronchitis secondary to tonsillitis.

In this group we find no severe hemorrhage and no pneumonia.

Case 10231 was complicated by electric shock or electric shock complicated by fractured ribs, as you will.

The histories are surgical histories, therefore short and concise perhaps as they should be. The clinical symptoms, even for surgical histories, are too short and of no value as records. The cause, diagnosis, x-ray reports, treatment and progress records I would consider very good. As a study, they were interesting.

CLINIC ON ALLERGY

DR. WILLIAM T. DRAKE
Kansas City, Mo.

(Held at Hotel Dieu, El Paso, as part of the Clinical Congress of the Medical and Surgical Association of the Southwest, Nov. 2 to 5, 1927).

CASE I.

This patient gives history of painful menstruation, frequent, occurring at intervals of two or three weeks; excessive bleeding, which dates back to early life. Has had a number of nervous shocks, among them being lost at sea. Chief complaint: Hives, with attacks at night after removal of clothing; worse when she is nervous or when she becomes heated. Relieved by cold. Not affected by food except that eggs, pork and oatmeal cause indigestion. Has never had asthma, hay-fever or eczema. "Sensitive to everything."

Here we have a typical case, claiming to be sensitive to "everything." There are many people who make this claim, but it is not true. In certain types of cases the patient may be sensitive to two or three things, however. She gives a history of several nervous shocks, among them being lost at sea; this may or may not be of importance in her case.

It sometimes takes months to solve some of these cases. Hives are always an internal reaction to something that has been absorbed or generated in the body. Hives is one of the hardest problems I have ever had to deal with.

Q. What effect does water have on the skin—say in the case of a patient who seems to be particularly sensitive to water during cold weather?

A. I think these people are probably sensitive to certain degrees of cold. I have seen cases in which if you put a drop of cold water on the patient's skin, the hive would come out over the exact area covered by the cold water. One patient I recall could leave a piece of ice on the skin for half an hour, take it off and have no sign of hives; but if he put a drop of water of a certain temperature on his skin, he would have hives.

This patient is affected by scratches. This condition is usually found about the waist-line where the clothes are tight, on the feet, etc. If the patients begin to scratch, they have hives. If they scratch over a large area, they will itch all over, which is a general reaction.

By way of treatment, I would advise this patient to scratch herself thoroughly all over, night and morning, with a good stiff brush. Within three weeks I think she will feel better. She may continue to be sensitive to heat or cold, or when excited. She will probably react to heat of a certain degree. Heat sensitive cases are usually worse when exercising. This is what we call multiple sensitiveness; they are not

sensitive to "everything" but they are sensitive to more than one thing.

I recall a patient who was terribly sensitive to glue. Once he picked up a beer bottle that had a wet label on it, and the general reaction nearly killed him. Another time he put on a pair of shoes which had just come back from the cobbler's, and immediately began to have a severe reaction; he pulled off the shoes, and proceeded to do a little of everything but die. With such a history we knew that he was very, very sensitive to glue. We put a little glue on his skin and immediately washed it off. The skin became red, edema appeared, he began to scratch and had a frightful attack. Became unconscious and pulseless. We administered adrenalin, and in about half an hour he began to come out of it. Such reactions can be terrific. I do not know of anything that will alarm one so much, if you do not know what these reactions are.

I have had three patients so sensitive to eggs, the merest trace of egg will make them very ill. I recall two cases of mine, little children, three or four years old, who had eczema for a long time. Their features were obliterated, the skin was red, exudate running off the face and hands, in fact they were hideous and loathsome to look at. On the body, too, there was abundant evidence of the condition. I went into great detail with the mother of each child, telling them to keep away from eggs, or anything that had eggs in it, such as noodles, cake, etc. The condition went on for two or three months, and I was losing patience, and so were the mothers. Finally, I told one of the mothers to get all eggs out of the house, and everything that contained eggs. Promptly the child began to improve and got well, the eczema disappeared and the child was normal in every way. We were happy, and told the other mother the same thing, and got the same results. Then each of these cases would have a recurrence off and on, and I worked for months trying to find out the reason for it, never thinking of eggs, because I had told them to keep eggs out of the house altogether. Then I discovered that the parents would eat eggs away from home and kiss the kiddies afterward, and they would have a reaction.

In cases like these we try to desensitize them by feeding egg in this manner: We use the whole egg, shell and all (because the patient may be sensitive to the egg-shell or something on the outside of the egg), and we stir it up well. Then we put a drop of this in a glass of water, give it to the patient three times a day; the next day two drops; then throw it away. We now

take another egg, give two drops three times a day; the next day four drops; then throw it away. Another egg,—give four drops three times a day; then eight drops. Double the dose each day if you can. One case I had would show evidence of eczema every time we got up to eight drops, and we had an awful time getting beyond that eight drops. When this occurs, it is always well to drop back a little when you start in again. Some people you cannot desensitize at all.

You can desensitize cold-sensitive cases by having them take cold tub baths; you can build up the tolerance in sunlight cases. The hardest problems are heat-sensitive cases that react when there is a change from cold to heat. You cannot desensitize to heat in any way except to build up the general health. If you get everything else that is wrong straightened out, perhaps they can stand heat better. Some stand heat better if you avoid cold.

I had one case of a doctor who had asthma every summer, and he said he could point to the very tree that was causing his asthma. If he played tennis in hot weather he would go under this tree and cool off, and get an awful case of asthma. The fact of the matter was, we could reproduce his asthma in the wintertime by heating him up, and when he was good and hot, rubbing him with a little ice; he would cool down and immediately stuff and start wheezing. Then we could stop these same symptoms by heating him up again. Through the use of cold baths, and the avoidance of exercise in hot weather we got him to the point where he had no asthma at all, and he changed from a wreck to a well man.

We now get relief in complicated pollen cases. I had one case that was relieved for eight years. We gave him treatment for two or three years for pollen, and he has been well ever since. One doctor treated himself for two or three seasons, and has been well ever since. The average case if treated one season will get complete relief; if you do not treat him the next season, he will probably have some trouble; the following season a little more trouble; the following season still more, and then you have to treat again.

Q. In making a test for pollen, you are liable to get an awful reaction if you are not careful, isn't that true?

A. I would advise you to pay less attention to the skin, because your history gives you a lot more information than any skin test. And do not try to follow the textbooks too closely. The pollen in different

districts is totally different. For instance, our rag-weed pollen is quite different from the rag-weed of the east. We make our pollen tests by using white vaseline on a slide, collecting the pollen of the different weeds, and getting the pollen count in this way. For instance, if a patient comes in on the 15th of September, and we consult our chart and find that the pollen count of rag-weed jumped from 10 to 1000, as frequently happens, on that day, we know this is the cause of his trouble. I prefer this method to skin tests in all cases. We do not make skin tests. Some positive cases give a negative skin test, and vice-versa.

A honey reaction can make a person very sick. These patients are not sensitive to the honey itself, but to the flower that the honey came from.

Many people are extremely sensitive to bed-bugs. I have seen cases with one or two bites, where it seemed that if they had had three bites it might have killed them. I know of one case, a child, who was stung by a wasp, the mother rushed out, brushed the wasp away, and before she got the child in the house, it was dead. Some people are very, very sensitive to these insect bites. I have seen bed-bug bites which produced vomiting, diarrhea, etc.

Q. What about spider reactions?

A. I have never seen any. I think that a spider reaction can only be produced by certain spiders, and in certain patients. Some people get a violent reaction from a hornet sting; yet I can get quite a kick out of having a hornet sting me and then have to fly away disappointed, because a hornet sting does not bother me at all. A hornet's sting will hurt some people and cause much swelling and discomfort; another person will not pay any attention to it.

I have studied food allergy cases a good deal. We found a real lesion in many instances where a patient would markedly react to food. Abdominal lesions predispose a person to food allergy.

Q. Is not this transmitted from mother to offspring?

A. Yes. It is always transmitted from mother to offspring. Rice, potato or egg may affect the mother's milk so that it will make the baby terribly sick. I think that is a very important thing for baby doctors to note.

Q. What has been your observation in cases who are sensitive to drugs?

A. They can be terrible. Cocaine can produce a perfectly violent reaction in a cocaine-sensitive person. That is the reason why doctors avoid cocaine in local anesthetics, I presume. I do not think novo-

caine has the same tendency to cause a reaction. People react to cocaine, aspirin, tincture of larkspur, morphine, etc. You can inject morphine and get a hive in many people.

Q. I knew of a case that was sensitive to novocaine and cocaine combined, but not sensitive to either alone. I ran across it in preparing the case for cystoscopy; the novocain or cocaine alone produced no reaction, but I did get a reaction when combining the two. The same patient was sensitive when novocaine and cocaine was swabbed on the mucous membrane of the nose. Have you had any experience in these cases?

A. That is a thing that has never been reported. I know that it exists. I would urge you to study the case carefully and make a report of it.

Q. The other day I came across a patient who lives on a ranch. He stays indoor most of the time, but occasionally goes out and rides, and when he does, either from wind or light, he develops eczema on the face or hands. Do you think that is entirely due to irritation from the wind, or is there some underlying cause?

A. I do not think it is due to wind or food. It is probably due to light, or possibly due to the pollen from some weed. I have heard of eczema cases which were caused by hay or corn, and not from pollen at all. If you can get at the cause of any case of eczema, you can desensitize them, and successfully clear up the skin. They are satisfactory cases to treat because they clear up so beautifully.

If this case you mention is a light-sensitive case, I would suggest that you expose the whole body to the light, front and back, keeping the face out of the light, if you wish, and increasing so that he will become tolerant to light. Start him on just enough exposure to get a slight reaction. I would expose an area on the arm, give him a good exposure and see if he reacts, and then you can judge your first dose.

I would advise anyone giving pollen to study it pretty thoroughly before you begin. If you do not do it exactly right, do not do it at all. Failures are too many. We frequently give three doses in one day, when a patient can only stay for treatment for a week or so. Double each time if you can. Pollen immunity comes very quickly. A pollen reaction may come in one to five minutes. You can take a patient from an infinitesimal dose to an enormous quantity in a week's time.

CASE II.

Male, age 65 years. Cataract left eye. Considerable loss of weight. Color bad. Cataract first noticed a year ago last summer. Christmas day, 1924, had a violent attack of asthma. Taken home and relieved by family physician with injections of adrenalin. Incidentally no asthma since then, although he had it for fifteen years before. Following spring in routine eye examination for glasses, found cataract left eye. No venereal dis-

ease. Considerable diarrhea for 26 years. Lived in tropics for many years. Appetite poor. Sleeps well. No pains. Some frequency of urination at night. No shortness of breath on exertion. Hemorrhoids for years. FINDINGS: S.B.P. 132, D.B.P. 82. Color of skin anemic. Skin loose and flabby. Marked emaciation. Fair degree of pigmentation. Purpling of hands and feet. Nails show some striation. Tongue rather pale. Appearance of anemia in roof of mouth. Throat negative except for pallor. Enlarged spleen, covering area fully three times ordinary spleen. Urine: Sp. gr. 1016, acid reaction, no albumen or sugar, few epithelial and white blood cells. Atrophied right lobe of liver. Has lost 34 pounds, without explanation in last few years. Diagnosis: One of the forms of anemia. Treatment: Iodides in small quantities; calcium to build up his metabolic or tissue changes. Diet along lines of fruit juices, fresh fruit, vegetables, cereals, no milk, using butter on cereals. Blood examination: Hemoglobin 55%; red count, 2,900,000; white count 6,000; polys 67, sm. monos 31; large monos 1; eosinophiles 1. Wassermann test negative. Teeth in bad condition. Absence of knee reflexes. Heart somewhat enlarged.

The history of diarrhea, such as this patient complains of, is an alcoholic diarrhea. The loss in weight does not go with pernicious anemia: the diarrhea would be a good excuse for this weight loss. The patient does not complain of numbness, and this is very much against pernicious anemia. Pernicious anemia has, as one of its symptoms, numbness of the finger tips, and nervousness. Very few diseases, except anemia, give this symptom of numbness of the finger tips. Loose or reduced knee jerks are very often present in these cases. The patient's mouth showed oral sepsis. Oral sepsis does do all sorts of things to people, but in pernicious anemia it has no bearing. The tongue in pernicious anemia is either an atrophic tongue or it is glazed, deeply furrowed, often ulcerated. His heart is enlarged; that goes with anemia. These flabby hearts come back to almost normal under digitalis. An enlarged spleen occurs in a certain number of cases of pernicious anemia.

I do not believe this case is pernicious anemia. If it is, he ought to live as long with his illness as without.

It may be that pernicious anemia is different in one district than it is in another. It may be that in a high altitude or dry atmosphere, it would act differently. It is possible too that those cases which have been diagnosed as pernicious anemia here, might be diagnosed as "sprue" down in the tropics. I know of one case of "sprue" I have seen, which came to autopsy, and he had pernicious anemia. It may be that they are one and the same thing.

I believe in blood transfusion. I like to get my patients well quickly. If you can get a patient well in five minutes, why take three months to do it? I do all transfusions

in my office. Sometimes a patient comes in on a stretcher, in an ambulance, and is able to walk out of the office; in that is a thrill you get once in a life-time. I am an extremely strong advocate of transfusion, because if your technic is flawless, it is exactly like giving a man a fresh drink of water when he is thirsty. But there is no use giving a pint when he needs three quarts. Watch your patient carefully, and be sure to give enough.

I recall one case who had a bleeding gastric ulcer, was not markedly anemic and I did not want to transfuse because I did not think he needed it, but we put him on a course of treatment. I hate to see a patient operated on for stomach ulcer unless there is obstruction. So we decided to try medical treatment. I was called out of town, and while I was gone the surgeon in this case discovered cause for an immediate emergency operation. When I got back, the patient had been operated on, was vomiting, hemorrhaging violently, and suddenly developed a hemorrhage from the rectum. The surgeon called on me and asked me to transfuse immediately or he thought the patient would die. While this conversation was going on, in walked a donor who wanted \$25.00; he was an emergency case too. So we did a transfusion in less than an hour. If that man had not walked into the office just then the patient would have died from hemorrhage.

SURGICAL CLINIC

DR. JAMES T. CASE
Battle Creek, Sanitarium,
Battle Creek, Mich.

Hotel Dieu, El Paso, November 4, 1927.

(As a part of the Clinical Congress of the Medical and Surgical Association of the Southwest, at their annual meeting, at El Paso, Texas, Nov. 2 to 5, 1927).

EXPLORATORY LAPAROTOMY UNDER SPINAL ANESTHESIA.

History.

Mexican woman, age 49, married.

Complaint: Severe pain in abdomen, especially upper left portion.

Family History: Unable to secure.

Past History: Had smallpox as a baby. Has had eight children; all living. Passed the menopause at age of 39. No history of previous illness, except the smallpox mentioned, and pneumonia six years ago.

Present Illness: Began six months ago, when she noticed her abdomen was beginning to enlarge. On October 18th, she had a severe pain in upper left part of her abdomen, which was severe enough to require morphine. At this time her abdomen was filled with fluid, with much distention. No palpable masses. On October 22, a phlebitis of the left leg developed. She was removed to the hospital for observation. The fluid in the abdomen seemed to diminish, so that bimanual examination showed hard, nodular masses. Blood count at this

time was 12,000, with 66 per cent polys. Wassermann was negative. Urine negative. All other physical signs negative, except those mentioned above.

(Note: The chief interest of this case was in the use of spinal anesthesia and Dr. Case's comments on this procedure.)

Four per cent novocaine is used, an ampoule of three c.c., containing twelve centigrams of the drug, if all of it is given, which is rarely the case, since we always lose a little. It is usually injected into the third lumbar interspace. We use a very fine needle and infiltrate the skin, so that the patient feels no pain. We ordinarily use a ten c.c. syringe so that we can see how much we give; this patient is of good weight so that we will use most of the ampoule. We first let the patient sit up for a moment; then as the patient lies down, have a pillow under the head to keep the chin forward on the chest, to encourage the flow of spinal fluid. Where you want the anesthesia for work low down, you need not inject so high, but at the lowest satisfactory point. We never use more than half an ampoule for perineal work or operations below the waist; for abdominal work, the injection of ten centigrams is quite sufficient (five-sixths of the ampoule). We have accompanied this injection with an ampoule of ephedrine; we used to use caffeine, and some still do. Ephedrine is a vegetable substitute for adrenalin, but maintains elevation of blood pressure for a much longer time. Spinal anesthesia is excellent for work on the prostate, bladder, lower ureter; have not used it for kidney work. For any operation below the navel this anesthesia is ideal, if you have a patient of the right disposition. As soon as I saw the nationality of this patient and talked with her, I picked her for this type of anesthesia. People who are slightly deaf are good subjects for local anesthesia. I have removed carcinoma of the transverse colon, of the cecum, and done the operation of gastro-enterostomy under spinal anesthesia. When you begin to get anesthesia high rapidly, you should put the chin in flexion, but the novocaine rapidly becomes fixed and then use even the Trendelenburg position.

In over one thousand patients upon whom spinal anesthesia was used, I have had three patients go bad with respiratory failure. One was in extremis before operation and this anesthetic should not have been used. The other two were gall-bladder cases and both stopped breathing at the moment of clamping the cystic duct. I have had men say they have had the same experience with patients under ether anesthesia. I cannot explain it. I have had

one case with nerve disturbance after operation; operation was for pelvic repair and patient had some paresthesia and anesthesia involving certain rami of the sacral nerves, with bladder paralysis lasting three weeks; in about two months all symptoms had disappeared. To avoid such incidents, it is important to use a small needle, the smallest the fluid will go through. It is said that patients get headache after spinal anesthesia; I have had only ten patients with headache in about a thousand cases, and they were people who were subject to headaches.

This woman has had an ascites which is diminishing. She has some pelvic masses and some that can be palpated through the abdominal wall. She has had attacks of colic, especially in the left side. X-ray examination reported nothing resembling obstruction. She has had much vomiting. This is very frankly an exploration. Several have seen her and think it is probably not a benign lesion, and it may be entirely adnexal malignancy. One of the disadvantages of this anesthesia is that we cannot talk too plainly about what we do or see. Patient has not lost much weight.

We make a left sided incision. We find a very relaxed abdominal wall, partly from the type of anesthesia; we get "abdominal silence" in the truest sense with this kind of anesthesia; we never have to fight the patient. We had some trouble in introducing spinal anesthesia in our clinic because of the prejudice; when it was first used, there were some accidents with cocaine, and there was a distinct prejudice against it. We have had one per cent failure, and it has always been when there is injection outside of the spinal canal, with the needle part way in and part way out, the injection not going into the canal; such perithecals gives only partial anesthesia. Jannesco used to use perithecals injections for some of his work higher up, not going into the canal, but to one side of it.

We carefully stop all bleeding points before the peritoneum is opened. The amount of relaxation is rather embarrassing, but I hate to use an anesthetic in which we have to fight the patient's intestines all the time to keep them in the abdomen; that is more harmful than the anesthetic. Incision of the peritoneum shows fluid under pressure. There is carcinomatous involvement all over the peritoneum. The abdomen is just a cake, with omentum studded with small nodules (one removed for biopsy). Liver is involved and bowel studded with tumors. There is an ovarian cyst, evidently malignant. Do not find any dilated small intes-

time. Do not see any occasion for anything but closure. Do not see any occasion for doing an anastomosis. The operation serves the purpose of settling the question for her.

THORASCOPIC CLINIC

RALPH MATSON, M. D.

Portland, Oregon.

(Masonic Hospital, El Paso, Texas, November 3, 1927).

(Before the Clinical Congress of the Medical and Surgical Association of the Southwest, at their thirteenth Annual Meeting. in El Paso, Nov. 2 to 5, 1927.)

A.C., Jr., Sunny Mountain Sanitarium Santa Fe, N. M. Mexican man, 29 years old. Former occupation, consular service. Married. Pulmonary tuberculosis.

Past History: Has had the usual childhood diseases. Had scarlet fever in 1903, following which there was perforation of the right ear drum. Had malaria in 1913 and 1914. He was in the United States until December, 1928; had influenza in August, 1918, and was ill two weeks. Pleurisy developed in the left side. He moved to South America and while there (in 1923) he began to lose weight and strength, was nervous and noticed color in his sputum. He was free of cough until July, 1925, at which time he was diagnosed as having pulmonary tuberculosis in the left lung. He entered Sunny Mountain Sanitarium and remained there until June, 1926, at which time he went to Fitzsimmons Hospital, where pneumothorax was started in July, 1926. He is said to have slight involvement in the right lung also.

Present Complaint: General weakness with cough. Raises about one and a half ounces a day. Patient is not feeling well, as they have been using high pressure in the left sided pneumothorax (plus 4½). He has pain in the back across the shoulder blades. He is free of fever.

The patient was given a preliminary hypnotic of 1-6 grain of morphine and 1-200 of scopolamin, one hour before going to the operating room. The operating room was so arranged that when the lights were out, the room was in complete darkness. Examination of the x-ray findings and physical findings showed that the patient had a left sided artificial pneumothorax, but it was an unsatisfactory collapse, due to the adhesions in the axillary line about the third rib. Dr. Matson stated that a careful study of the x-ray films and fluoroscopic examination made him believe that this case was not suitable for intrapleural pneumolysis; however he thought the patient should have the benefit of the thorascopic examination. A small skin area was infiltrated with half per cent novocain; after the skin was infiltrated, the needle was pressed deeper into the intercostal space, and the tissues anesthetized to the parietal pleura. The needle was then pushed into the free space and a small amount of air drawn into the syringe, to demonstrate the depth of the chest wall. The site selected for the in-

troaction of the trocar was about the third left intercostal space, at the outer side of the rib line. A small bistoury was used to incise the skin, the incision being about one centimeter in length, and parallel with the general direction of the ribs. A trocar and cannula were then inserted through this incision; the trocar was withdrawn. The pneumothorax was maintained because the cannula contained a ball-valve, thus preventing the outward flow of the air. The electric light was then placed through the cannula, and immediately the chest wall was illuminated to such an extent that the ribs were clearly defined. Dr. Matson then located the adhesions to the chest wall, the lung tissue, and blood vessels along the edge of the incision. When the patient gave a slight grunt, the lung tissue would expand in a manner similar to a collapsed glove finger when air is forced into it, showing distinctly that the lung tissue extended to the parietal pleura and that the shelf-like adhesions could not be cauterized without opening the tuberculous cavity. Dr. Matson said that if he endeavored to cauterize such an adhesion, the results would be disastrous, and bring the operation into disrepute.

By manipulating the instrument he was able to demonstrate the base of the pleura, diaphragm, pleural covering of the pericardium and the mediastinum. He also manipulated the instrument so as to show the shelf-like adhesions to the dome of the pleura.

In turn, he demonstrated to each of the small group of doctors the various scenes described above, and they were satisfied that the view through this instrument was ample and sufficient for the purpose desired. The main difficulty of the spectators was the lack of experience in orientating themselves, so as to know the direction of the structures examined through the light. Dr. Matson explained how, if this were a suitable case, he would introduce a cautery through a similar incision in the posterior axillary line and then visualize the cautery as it penetrated the chest wall and the most advantageous point to burn the adhesion. He described how the chest could be cleared of smoke by causing the patient to give a slight grunt (not a cough) and the small instrument would allow sufficient air to escape to clear away the smoke. He emphasized upon his audience, both doctors and nurses, the necessity of the strictest surgical asepsis, and said that caps, gowns,

gloves and masks should be sterile in this operation.

The type of instrument demonstrated was that of Jacobeus and he also demonstrated the enlarged view which could be obtained by another instrument.

REPORT OF CASE OF LUNG ABSCESS.

FELIX P. MILLER, M.D., El Paso, Texas.

(Presented before the El Paso County Medical Society).



This patient, R. V., age 18, school boy, Mexican, came to me in July, 1927, complaining of cough, with a large amount of sputum; fetor was present. Cough was more pronounced in the morning and frequently resulted in vomiting, especially after breakfast. Appetite was poor, had irregular fever and had lost twenty-seven pounds in weight in the past two years.

He complained of an ill-defined pain in the lower part of left chest. He states that he was well previous to September, 1925, when he developed a severe pain in the base of his left lung with fever, following an operation for infected tonsils. A diagnosis of empyema was made, and a thoracotomy was performed but no pus was found. A second operation was performed and a tube was inserted. He did not think pus drained through the tube. His cough continued as before. In April, 1927, he was operated on and two or three ribs were removed, but no pus was found.

At my examination a diagnosis of parenchymatous lung abscess was made; it was situated in the base of the left lung. X-ray findings were obscure because of heart shadow but conditions could be easily seen after lipiodol injection. Both antero-posterior and lateral films were made. The diaphragm showed movement on deep inspiration. A phrenicotomy was done and the diaphragm was paralyzed, with slight compression of the abscess cavity.

On August 15th, 1927, a partial thoracoplasty was done, with cautery destruction of the lung tissue until the abscess cavity was opened into and drained.

Patient has made an uneventful recovery, has gained twelve pounds in weight, is free of cough and fever and has returned to school.

CASE REPORT OF BRONCHIECTASIS.

A. D. LONG, M.D., El Paso.

(Presented to the El Paso County Medical Society).

CASE HISTORY.

J. A. T., male, age 32, married, auto sales service manager.

Present illness: In June, 1927, ten days after and while convalescing from herniotomy under general anesthesia and mumps following same, suddenly developed high temperature with general pains over body, more pronounced in right side of chest. Cough and expectoration became exaggerated. This condition lasted for a month and has gradually declined until cough and expectoration is now about as it was before the recent exacerbation. Sputum at present has a very foul odor which patient states he has only noticed since acute flare-up of symptoms following the herniotomy four months ago. Normal weight is 135, present weight is 118; temperature 99; pulse 94; expectoration three ounces daily.

Physical Examination: Medium build, undernourished, appears chronically ill. Skin is pale; has appendectomy scar. Throat, glandular and circulatory systems appear normal. Diminished fremitus due to lack of function in right side; impaired resonance and a distant respiratory sound over entire right lung; no rales before or after cough. Left lung normal except for compensatory emphysema from hyperfunction.

Family History: Father died at age of 48 (cause unknown); mother living at age of 45 in good health; one brother living in good health; three sisters living in good health; one brother accidentally killed; married at age of 21, wife and three children in good health.

Personal History: Was healthy and strong as a child; had most of the diseases of childhood without complications or sequelae. Had typhoid and pneumonia at age of 18, attack rather severe. Enlisted in U. S. army at age of 20 in April, 1916, and served until July, 1916, when he was discharged. Had bilateral otitis media and polyp in ear at age of 28 (1924). Had clean appendectomy in May, 1926, under general anesthesia; convalescence slow and recovery not complete, patient being unable to regain normal health. In the meantime developed rather severe cough with free expectoration, which continues to the present time, and patient now recalls that he had a slight cough at times for several years. Had operation

for strangulated hernia under general anesthesia in May, 1927; while convalescing from this he developed mumps, supposedly, which ran a moderate course. Has had slight cough and general constitutional disturbances for the past two years.

Laboratory Reports: Urinalysis negative. Sputum has a very offensive odor, with much mixed infection, but no tubercle bacilli found on repeated examinations.

X-ray in July 1927, and at present, shows pathology in the right lung, third interspace and sixth vertebral spine to base suggesting more of a pneumonitis than tuberculosis.

Conclusion: Bronchiectasis of long standing, aggravated by general anesthesia four months ago, causing acute exacerbation, with possibility of tuberculosis of long standing not excluded.

Recommendations: Make stereo-radiographs of chest after lipiodol injection before final diagnosis. Institutional care with iron and calcium medication, postural drainage, Alpine lamp treatment and sun baths.

Artificial pneumothorax and phrenicotomy to be considered.

DISCUSSION

I am presenting this history as a follow-up to a number of cases I have previously shown to the Society, in an effort to emphasize the number of patients with non-tuberculous pulmonary disease that come to us diagnosed as tuberculosis. This history also shows that there is usually sufficient evidence on which to base a diagnosis if the evidence is sought in the proper manner.

This patient came to me with the following letter from a physician in another city:

"This will serve to introduce Mr. T., whom I have examined carefully and find him to be suffering with pulmonary tuberculosis. I have advised that he go west for his health and report to you for treatment at once."

I want to emphasize, in this case, as I have in the others I have presented, that a superficial physical examination of the chest was sufficient to make me doubt the presence of tuberculosis and this is true in practically every case of non-tuberculous pulmonary disease. There is not that characteristic localized area of increased tactile fremitus, impaired resonance and rales before and after cough, but on the contrary, there is evidence of pathology, the physical signs of which are hard to group. Of course, x-ray and repeated sputum examinations, together with history of the case, usually reveal sufficient evidence on which to base a diagnosis.

In this case the foul smelling sputum was sufficient to reduce the diagnosis to a choice between lung abscess, bronchiectasis and gangrene of the lung. The latter could be ruled out because it is always found in terminal cases of tuberculosis.

The history of the cough, dating back over a period of several years, with insufficient physical signs to justify a diagnosis of tuberculosis, would favor a diagnosis of bronchiectasis. The acute exacerbation following the general anesthesia can readily be understood as such. And the striking pathology shown by x-ray which would not be found in bronchiectasis can be accounted for in the same manner that is, a pneumonitis following general anesthesia.

I have presented this case before the final stage of diagnosis by lipiodol injection and x-ray, because it seems that more interest develops in a report of such cases before the final diagnosis is made.

SACRAL ANESTHESIA IN PROCTOLOGICAL AND UROLOGICAL SURGERY.

EDWARD J. KILFOY, M. D.
Los Angeles, California

In recent years sacral anesthesia has taken a definite place in proctological and urological surgery. Since the beginning of the use of ether in 1842, many different methods of producing anesthesia have been tried. Of late years sacral anesthesia by the injection of novocain has been used to accomplish this end. Novocain was discovered by Einhort, and sacral anesthesia was first performed by Sellheim of Freiburg in 1905, and with the advancement of technic sacral anesthesia has taken the place of general anesthesia in many conditions in organized hospitals and clinics. There are several reasons why this type of anesthesia has not become popular outside of hospitals and clinics.

1. The lack of knowledge regarding its use as an anesthetic in proctological and urological surgery.

2. Poor technic in the hands of those who do not use it frequently.

3. Poor anatomical knowledge regarding the bony structures.

TECHNIQUE

The patient who has previously been thoroughly examined and the pathological diagnosis made, is placed on the table in the prone position, with a medium sized pillow, sand bag, or kidney rest placed under the abdomen at a level of the anterior superior spine of the ilium. If the kidney rest is used it must be so adjusted as to make the patient comfortable. The skin over the sacrum and coccyx is then cleansed with ether, and painted with two per cent alcoholic solution of mercurochrome. Mercurochrome is used instead of iodine because it never burns the patient. A sterile drape sheet, or sterile towels, are then placed about the patient except over the operative field. With the

thumb and index finger of the left hand feel for the tip of the coccyx and two cornua of the sacrum. The two cornua are the most prominent bony landmarks even in the obese patient. In the midline and about one centimeter below the two cornua a small wheal is made, using one per cent novocain, which contains five minims of adrenalin to one hundred cubic centimeters. The operator then attaches a ten c.c. Lundy syringe¹ and a fifty mm. needle and injects ten c.c. into the subcutaneous tissues and the sacrococcygeal ligament. Next, take a sacral needle, which is a small spinal puncture needle, between the thumb and middle finger of the right hand, with the bevelled edge of the needle turned up; first make sure that the stylet properly fits the needle, and that there are no rough edges to the needle, by passing it several times through a sterile piece of gauze; with a moderate degree of pressure the sacral needle is forced through the skin and muscles, and then meets with an increased resistance and a snap is felt as the needle passes through the sacro-coccygeal membrane.² Ten c.c. of novocain are slowly injected into the caudal canal, and the needle is passed two to three centimeters higher in mid-line. The operator then waits a few minutes before any more injecting is done, and then continues: the solution should enter the caudal canal under very little pressure if the needle is in its proper position. Before going ahead with the injection, aspirate back into the barrel of the syringe to make sure that the point of the needle is not in one of the veins of the sacral plexus. If fresh blood should be aspirated into the syringe, withdraw the point of the needle, and aspirate the second time. If no blood appears, continue with the injection, slowly rotating the syringe, and aspirating after every two or three c.c. of novocain are injected. If fresh blood appears in the syringe these are usually the cases in which a reaction occurs; this is usually immediate, and manifested by cold perspiration, blanched appearance, air hunger, palpitation, and slow pulse. The pulse may drop to thirty or thirty-five per minute. If such a reaction should occur give the patient an intramuscular injection of caffeine sodium benzoate of seven and half grains; then wait ten to fifteen minutes for this reaction to wear away before any further injection is done.

Next, locate the posterior superior spine of the ilium; one centimeter from the midline and one-half centimeter below is usually located the first sacral foramen. The posterior foramina lie below a line drawn from a point on the skin one centimeter mesial

and five-tenths centimeter below the posterior superior spine, to a point one centimeter external to the sacral cornu on the same side. Three wheals are raised, one at the upper point, one at the junction of the upper and middle third, one at the junction of the middle and lower thirds. These wheals should be over the second, third, and fourth sacral foramina. The needles used to inject the different foramina are of different sizes, fifty, eighty, and one hundred millimeter³, and the build of the individual determines the size of the needle to be used. The number of foramina to be injected depends upon the type of operation to be performed. For such operations as fissures and stretching of the external sphincter a caudal injection alone is all that is needed. For hemorrhoidectomy, caudal and second sacral injections on each side are sufficient, and many operators use only the caudal. If a fistula is to be excised, a caudal and a second, third and fourth on the side of the fistula are required, sometimes the first depending on how high the fistulous tract extends into the anal canal. The foramina on the opposite side are not injected, except the second, unless the operator has reason to inject the others. For a high carcinoma, benign stricture, prolapse and plastic operations on the sphincters, prostatectomy, and excision of bladder diverticula, a caudal and all four sacral foramina must be injected. The amount of novocain to be used varies according to the build, age, and amount of previous reaction following the caudal injection. The average amount of solution in the four foramina in any major surgery is, for the first, ten c.c.; for the second, five c.c.; for the third three c.c.; for the fourth, two c.c. If the patient is in fairly good health, it is safe to give fifteen c.c. in the first foramen. As long as the amount of solution used is not over one hundred cubic centimeters, it is a safe amount in the four foramina. If lukewarm solution is used anesthesia is obtained in from ten to fifteen minutes. If cold solution is used, from fifteen to twenty-five minutes is required before complete anesthesia takes place.

After a sufficient amount of time has been allowed for anesthesia to take place, the patient is tested with the point of a hypodermic needle, to see if he can differentiate sharp from dull. Another very good way is to apply a hemostat forceps to the skin about the external sphincter, and if the anesthesia is not complete the patient will immediately tell you so. If complete, only the sense of pressure is felt. Anesthesia will last from one to three hours, depending on the number of formamina injected and the

amount of novocain used. If the anesthesia is complete there will be, (1) loss of pain sensation; (2) loss of the anal reflex; (3) a gaping external sphincter with relaxation of the perineum. If these three things are present the patient is ready for the required surgical operation. However, if a suprapubic prostatectomy is to be done, the patient is now placed on his back, and infiltration of the abdominal wall from the umbilicus to the symphysis with one-half per cent novocain is used. Under such procedures any major surgery can be performed on the rectum, perineum and bladder, without pain to the patient. There may be a mild degree of pain on opening the peritoneal cavity for a high lying, relatively fixed type of lesion; also there will be some nausea if much traction is done in trying to deliver the lesion.

To use sacral anesthesia the surgeon must use a different type of technic than the one using a general anesthetic. He must be calm, equable, content to wait in spite of delay. He should handle tissues delicately and be careful with his conversation during the operation.

CONCLUSION

1. This type of anesthesia is of great value in proctological and urological surgery, in that it does away with a great many post operative complications such as pleurisy, pleurisy with effusion, pneumonia, and pulmonary emboli. In this way it is of material aid in lowering the surgical mortality.

2. The operation is easily done, and if properly executed will give complete relaxation of the perineum and rectum.

3. There are certain patients who will object to such operations as hemorrhoidectomy, fistulectomy, etc., if done under a gas or ether anesthesia, but if to be done under sacral anesthesia they are willing to have the operation performed.

4. If sacral anesthesia is used, and used successfully, the patient is a booster; used unsuccessfully the patient is a knocker.

5. Failure to obtain anesthesia is the fault of the one trying to produce the anesthesia. If there is poor anesthesia, or no anesthesia, it is due to the fact that the solution was not injected into the caudal canal or into the posterior foramina.

6. Sacral anomalies are not uncommon but usually do not interfere with the production of anesthesia.

7. The patient should be given mental assurance that the surgical field is completely anesthetized before beginning work.

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PROCEEDINGS OF THE THIRTEENTH ANNUAL MEETING OF THE MEDICAL AND SURGICAL ASSOCIATION OF THE SOUTHWEST

(El Paso, November 2 to 5, 1927)

(Continuation of the luncheon talk of Dr. Wm. Colby Rucker, of the United States Public Health Service, New Orleans, La., on Scarlet Fever; see December issue for first portion.)

The Dicks have also worked out a skin reaction. This is of great value in that it enables us to tell whether or not an immunity to the disease exists. We did a series on about 1,500 people in the hospital which I command. The great bulk were over twenty years of age. We did, however, have an age incidence that ran between two months and eighty-two years. These men come to us from all over the world. The little child we tested was the child of one of the officers. We also had a few women from among the nurses. The great bulk of these persons were sailors who had been all over the world, many of them born in foreign countries; so that we had more or less of a cross section of the world itself, with white men, red men, black men, yellow men, and all the mixtures in between. An interesting thing about that work was that we found practically every one of these men was immune to scarlet fever. We also found those who were not immune, were just young boys, many of them having been to sea for the first time—boys working in the galleys and mess—boys who wanted to see something of the world. But the tests proved my statement, however, that one who has reached adult age, has had the disease.

The Dicks also have produced a serum for the cure of the disease, giving a passive immunity, and have developed an anti-toxin method whereby children can be immunized against the disease. That is the most important factor we have now in our possession whereby an entire community can protect its children against scarlet fever. This has been done in the city of Syracuse, N. Y., which was Dick immunized four years ago, since which time there has not been a case of the disease originating in the Dick group and the only cases that have occurred in the city were imported ones. So if we want to have scarlet fever any more, any community that wants to have it, will have to pay the price for it. Any community that does not want it can prevent having it. It is well worth the amount of trouble and expense to avoid the disease and, above all, the infirmities following in its wake.

The work done by the Dicks has been duplicated, so it is claimed, by some intelligent observers in Rome, who have apparently worked out another organism—a very different one from that described by the Dicks. I have followed the literature of this very closely and when I was in Rome two years ago, I went down to inspect their work

and to talk to them about it. I do not understand it, but I think they have something. I do not understand why it does not stand up with the Dicks' work; it is too much for my imagination. Nevertheless I do think that we must in all fairness to ourselves take heed of the work the Italians are doing on this score.

The other day in Chicago, I spent the day with Dr. Porter, who is an epidemiologist of national reputation, and who has just been appointed Dean of the University of California. He has been to Rome where he has been following this work in the institution and he says undoubtedly those people have something, but he is totally at a loss to understand why it is that it does not agree with the Dicks' work. I think our attitude should be this: We should be perfectly broadminded to the work the Italians are doing insofar as our efforts against the disease are concerned, but that we should stick to the Dick method—that is, follow it out at least for the time being. After all, it is not so much a question of catching this bug and putting a label on it, as it is the protection of the public. We do not need to worry about the scientific end of this as practitioners of curative and preventive medicine.

In order that scarlet fever and other communicable diseases shall be controlled and prevented, it is necessary that there shall be harmony of thought between the practitioner of curative medicine and the practitioner of preventive medicine. If we get together, there is no reason in the world why we cannot make this disease as archaic as yellow fever."

As the second luncheon speaker, Dr. James T. Case, of Battle Creek, Mich., was introduced by Dr. Rogers. He gave a brief account of his observations on the surgical facilities in South American countries, as found by him on two visits, on the last of which he was the official guest of each of some six or seven governments, as a lecturer on roentgenologic subjects at their universities.

At the afternoon session, the first speaker was Dr. William H. Cameron, Medical Director of the Radium Chemical Co., of New York, who spoke briefly on "Radium and Radium Emanations in Cancer." After outlining the basic principles of radium treatment, he opened the way for questions on the application of radium to various conditions, and spent the remainder of the period in answering such questions.

The second speaker was Dr. George A. Wyeth, Endothermist for Columbia University and Cornell Medical School, New York, who presented a very excellent summary of the "Extension of the Surgery of Neoplastic Diseases by Electrothermic Methods." This lecture was profusely illustrated by lantern slides and a moving picture showing very graphically the technic of operation in lesions about the head.

At the evening session, held at eight o'clock in the Crystal Room, the first speaker was Dr. Harry A. Crossen, professor of Gynecology, Washington University, St.

Louis. Dr. Crossen gave a beautifully illustrated lecture on "Systematized Treatment of Uterine Prolapse." This address will be published in full, with illustrations, in an early issue of this journal.

The second lecture was by Dr. William W. Duke, of Kansas City, formerly professor of Experimental Medicine at the University of Kansas Medical School. Dr. Duke lectured on "Treatment of the Anemias." He advocated the use of blood transfusion in practically every type of anemia. He stated that sufficient blood should be transfused to bring the hemoglobin to normal, as judged by the color of the skin, preferably judged by observing the palm of the hand held at heart level.

Friday, November 4th

Dr. James T. Case of Battle Creek, Mich., conducted a clinic in abdominal surgery at the Hotel Dieu. (Report of one case in this issue.)

Dr. George A. Wyeth of New York conducted clinic at Hotel Dieu, with removal of large sarcomatous epulis by electro-coagulation.

Dr. Harry A. Crossen of St. Louis conducted clinic on gynecologic surgery at the Masonic Hospital, with operation on proctentia by vaginal hysterectomy.

The first clinical lecture of the morning session, at the Hotel Hussman, was a joint presentation by Dr. Wm. B. Coffey, and Dr. John Humber, of San Francisco, on "Sympathectomy for Angina." This was a description of the original work done by Dr. Coffey on the surgical relief of angina, and a presentation of the anatomical researches of Dr. Humber on the entire sympathetic system. It was illustrated by a profusion of lantern slides, as yet unpublished, showing the entire dissection of the sympathetic nervous system.

The second lecture was by Dr. William H. Park, of New York City, on "Poliomyelitis." (This lecture was published last month, in this journal.)

At the afternoon session, at two o'clock, the first lecturer was Dr. Drew Luten, Associate Professor of Clinical Medicine, Washington University, St. Louis, who spoke on "Digitalis Therapy in Heart Disease." Dr. Luten attempted to analyze the facts about digitalis from the theories and on this basis to give a rational foundation for digitalis therapy.

The second speaker was Dr. Frederick M. Allen, New York, director of the Physiatrie Institute of Morristown, N. J., who gave his lecture on "Diabetes." Dr. Allen was on

the program for two lectures, one on diabetes and the other on hypertension. He stated that it would make a more logical presentation to give the lecture on diabetes first. He held the close attention of the audience for an hour, as he presented the clinical facts about diabetes.

At the Public Health Meeting, held at eight o'clock in the Texas Grand Theater, Dr. Wm. Colby Rucker, of the Public Health Service, spoke to an excellent audience on "Infantile Paralysis."

Saturday, November 5th.

Dr. Frederick Allen of New York conducted clinics on hypertension and diabetes at the Hotel Dieu.

Dr. Drew Luten of St. Louis conducted clinics on heart disease at the Hotel Dieu.

The first lecturer of the morning session at the Hotel Hussman was Dr. James T. Case, of Battle Creek, whose subject was "Some Practical Problems in Gastro-Intestinal Surgery." This lecture was freely illustrated by lantern slides and covered many interesting phases of abdominal surgery.

The second lecturer was Dr. Le Roy Sante, Associate Professor of Roentgenology at St. Louis University, St. Louis, whose subject was "Pneumoperitoneum; Its Indications and Applications." This rather unique subject was presented in a very clear and concise manner, with numerous lantern slide illustrations. The paper has already appeared in this journal.

The luncheon meeting of this day was a business meeting, whose proceedings have already been published.

At the afternoon meeting, the first speaker was Dr. Frederick M. Allen, of New York, who gave his second lecture on "Hypertension." This talk was closely followed by a large and intensely interested audience.

The last speaker of the program was Dr. William W. Duke, of Kansas City, who lectured, this time, upon "Medical and Surgical Aspects of Allergy." He gave a very interesting and highly instructive talk on the various manifestations of allergy, with suggestions as to the management of such cases.

On Saturday evening the Association, with its guests, after four strenuous days of work, gathered at the Toltec Club in Juarez for a period of relaxation. A very beautiful and characteristic banquet was spread, with about a hundred and fifty members, guests and ladies in attendance. Special permission had been secured to hold the gates open for this particular meeting until twelve o'clock, and until about eleven forty-five the gathering dined, danced and enjoyed music.

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from the members of the four organizations owning the journal have allowed us to furnish the cuts for all illustrations submitted, without cost to the authors, except in one instance when the cost in excess of fifty dollars was charged to the author.

The journal has been able to publish all the material obtainable from any of the state or county societies. The chief weakness of the journal is the failure of the county and state officers to use the journal as their medium of communication, for the publication of their transactions and scientific products. There is no single county society in Arizona or New Mexico which avails itself fully of this privilege, and the journal will never be truly representative until this is done.

OUR TWELFTH YEAR

This issue starts Volume XII, completing the eleventh year of publication of SOUTHWESTERN MEDICINE. So far as we can ascertain, there is universal satisfaction among the constituents of the four organizations interested in this journal. With the aid of the Cooperative Medical Advertising Bureau of the American Medical Association, the journal is self-supporting. The subscription fees collected

ARIZONA STATE MEDICAL ASSOCIATION

(April 19, 20 and 21).

The Thirty-seventh Annual Meeting of the Arizona State Medical Association will be held in Tucson, April 19, 20 and 21. The President-Elect, Dr. A. C. Carlson, of Jerome, Ariz., is the chairman of the General Program Committee, the other members of which are Drs. C. A. Thomas of Tucson, W. V. Whitmore of Tucson and W. Warner Watkins of Phoenix.

The scientific program is under preparation. A symposium on poliomyelitis has been provided. Dr. Henry Dietrich of Los Angeles, well known pediatrician, formerly located in Arizona, will renew his friendships in this state and present a paper on poliomyelitis. Dr. John C. Wilson, orthopedist, of Los Angeles, will present the orthopedic phases of the subject. Dr. G. W. Lockett, Director of Health for New Mexico, will present the public health phases of this disease, coming as the fraternal delegate from the New Mexico Medical Society. Dr. Kimball Bannister of Phoenix will present personal observations in the clinical phases of this subject, completing the symposium which will occupy a half day on the program.

Dr. Felix P. Miller, of El Paso, President-Elect of the Texas State Medical Association, will come as the fraternal delegate from Texas and present some phase of chest surgery. Dr. W. L. Brown of El Paso will present a selected surgical subject.

The papers from within the state have not yet been ascertained. The various county societies are hereby invited to have their members who desire to appear on the program send in the subjects of papers at a very early date. Following the excellent example set last year, the program will be closed at least thirty days in advance of the meeting.

THE SOUTHWESTERN ASSOCIATION

The conclusion of the report of the Clinical Congress held by the Medical & Surgical Association of the Southwest in El Paso, last November, will be found elsewhere in this issue.

There was considerable discussion, during the El Paso session, about the desirability of converting our Southwestern annual meeting into a Clinical Congress, and the objections and difficulties which would have to be met, should this be proposed.

There is no question about this being a radical departure from the purposes and ambitions around which the Southwestern Association was organized. In the face of the preponderating desire on the part of the two hundred and more men attending this Congress, to have more meetings of this type, the matter was left in the hands of the Program Committee, composed of the last three presidents of the Association, with the president and secretary.

The idea of extension methods in post-graduate work has grown very decidedly in the past five years, and if the southwest is to keep abreast of the times, something more than the conventional medical meeting must be provided, else our constituents will continue to go elsewhere for the more advanced things. The question is whether the Southwestern Association shall intervene and undertake to provide what is needed and desired, or whether some entirely new organization shall be allowed to enter the field. At the last annual meeting of the Arizona State Medical Association, a proposal was advanced to have an annual post-graduate medical extension course at the University of Arizona; the meeting in El Paso so nearly met the desires of the proponents of this plan that we are advised the plan will be dropped if the southwestern clinical congress is continued. It is desired to have an expression from as many of the members of the Association as possible, as well as from all other doctors who are interested, on the following points:

1. Do you favor the conversion of the annual Southwestern meeting into such a clinical congress as was held last November, in El Paso?

Or, 2. Do you favor the continuation of the old program of clinical demonstrations by the local society, plus lectures and papers by selected teachers from large medical centers?

Or, 3. Do you favor a program made up partly of teachers from medical centers and partly of men from the southwest?

Or, 4. Do you think the program, both

clinical and papers, should be confined to the members of the Association, as far as possible?

5. Are you in favor of a registration fee to cover the cost of assembling such a clinical congress?

Please address your replies to Dr. W. W. Watkins, Secretary, Box 1587, Phoenix, Ariz.

WHOLESOME FEAR VS. LAISSEZ FAIRE IGNORANCE

There is a sect which teaches that the way to avoid illness is to deny its existence. The editorial in the Arizona Republican of January 19th, on "Propaganda of Fear" might well have been written by a devotee of this pseudo-scientific group. It does not have a proper place among the clear-headed, sane and logical discussions which usually lend the necessary flavor to our breakfast, as we peruse the editorial page of this great newspaper, each morning.

The argument was that since the medical profession do not know the cause of cancer, they should not try to scare people by making them think they have cancer. And further, that the medical profession has little to offer to one who has come to the realization that he or she has this dread malady.

We have found the editor of the Arizona Republican marvellously well-informed on an astonishing variety of subjects, but this editorial falls down at a critical point; the editor is either not informed or he has not been willing to admit the truth of the available information.

If the medical profession had followed the practice of waiting until it could tell the public the definite cause of a disease, before attacking it, millions of people would have died who, because of the incomplete information, freely given out by medical science, were saved. To this day, no doctor can say what organism causes smallpox, but because the profession followed a man who worked in the dim light of a partial knowledge, untold millions of lives have been saved. Yellow fever, that scourge of death which once made many choice places on the earth uninhabitable, has been wiped almost out of existence, and we do not yet know what causes this disease. The medical profession freely admits that it does not yet know the cause of cancer, but it does know that **any** accessible cancer, taken early enough, is **curable**.

At this point the editor of the Republican is again led into a misleading statement, when he says that the relief which the medical profession has to offer is a very dubious one. It is dubious, in fact hopeless, in those

stages of cancer which are ordinarily recognized as such, by the non-medical man or woman. It is entirely hopeful in the earlier stages regarding which the American Society for the Control of Cancer is attempting to educate the public.

In the case of a small lump in the skin or breast, or a chronic ulcer, or a suspicious symptom of any sort, which is the saner and more logical procedure; to visit a well-informed physician and be assured that the lesion is entirely benign, or if it is such a lesion as may become cancerous later, to have it removed or destroyed with the complete assurance that this will end the danger; or, ostrich-like, to bury the head in the sand of ignorance until the insidious advance of the growth makes it evident to any one who can see or smell that the hand of death is on the person? It is the contention of the medical profession and the Society for the Control of Cancer that wholesome fear which leads to eventual safety, when its prompting is followed early, is infinitely better than the laissez faire attitude that we should not tell people unpleasant things.

CHICAGO AND "THOMPSONISM."

Chicago's un-American mayor will undoubtedly achieve eponymic immortality in the field of shady politics. In the vocabulary of public health and medicine, a "thompsonian" procedure will hereafter mean the prostitution of a political power for personal advantages to the detriment of the health and physical well being of the people. This will result from Mayor Thompson's most recent offense against decency and honesty in government in the summary dismissal of Dr. Herman N. Bundesen, the efficient head of Chicago's Health Department, and the appointment of a comparatively unknown personal friend to this important position.

Dr. Bundesen, one of the most able health officials of the country, just recently elected to the presidency of the American Public Health Association, expressed himself as "surprised", according to The Survey of Dec. 15, 1927, at being superseded by a young surgeon of Chicago, whose chief recommendation, according to the mayor, was that he "made a new face on me several years ago when I was burned in a gasoline explosion."

It is unlikely that the new appointee will be able to save the mayor's "face" in the field of public health, and this will be another example of political exploitation for personal profit, with the added stigma of

having been done at the expense of the health of the citizens. "Thompsonism" becomes a medical eponym, of a peculiarly vile flavor.

RICHARD ANDREW WILSON.

(El Paso).

The death of Doctor R. A. Wilson, retired City Health Officer of El Paso, occurred on January 5th, under tragic circumstances. Dr. Wilson had been a sufferer from heart disease for some time, and had just left William Beaumont Hospital after three months' treatment. Brooding over ill health and inability to resume his position, he first tendered his resignation and then took his own life in the offices of the City Health Department.

Doctor Wilson was born in 1870, and graduated from the University of Nashville Medical Department in 1896. For many years he had ably and efficiently served the city of El Paso as the director of its Health Department. The high esteem in which he was held by his community, his associates in the city government and his confreres in the profession, was attested by the throng of city and county officials, city employees, citizens of El Paso and members of the El Paso County Medical Society, who attended his funeral services. The address of Rev. Floyd Poe, of the First Presbyterian Church, who officiated at the chapel ceremonies was a testimony to the entire medical profession and applied, in peculiar fitness to Dr. "Dick" Wilson, as he was affectionately called:

"If I were not a preacher," said Dr. Poe, "then I would be a doctor, if not a doctor, then I would be a teacher and if not a teacher, then I would be a lawyer. These four great professions are the essentials to organized human society.

"I am thinking of the war, when physicians toiled day and night patching up the wounded. I am thinking of the sacrifice of eye-sight and limbs they made in the development of the x-ray. I am thinking of the Panama Canal, where workers were dying like flies, until three American doctors went on the ground.

"I am thinking of the physicians, as they go into the foulest of places—places which you would not enter, my friends—stench, filth, dirt, disease. Yet, day after day, night after night, they enter these places—taking their lives into their hands—cleaning these places, making them sanitary.

"I am thinking of the physician returning after the war, broken in health and yet carrying on. I am thinking of the doctor, when little children come, how they ease the pain and suffering. How we depend on the doctor!

"I am thinking of the doctor, who fought unyieldingly for inoculation, vaccination, better housing conditions, better health conditions. Because of their skill, their courage, their interest and love of their profession, we are living longer today.

"Let me say to the doctors that no man can be very sick in body without being very sick in soul. Thus our two professions are interlocked.

"Dr. Wilson was beyond the draft age, but he did not think of this. He volunteered when his country called. All during his life he kept his ideals throughout his practice. He had the respect and esteem of his brethren. If you want a correct view of him, go to those in his profession.

"His influence in the health problems of El Paso will be felt for many years to come. He left a health program which will call for the best skill and efforts from those carrying on this work."

DAVID C. DODDS.

(Albuquerque, N. M.)

In the death of Doctor David C. Dodds, the Bernalillo County Medical Society has lost a valued and esteemed member. Doctor Dodds was the regional medical director of the Veterans' Bureau, and had been a resident of Albuquerque for nine years. He was formerly president of the Bernalillo County Society.

He was born in 1879, graduated from the University of Illinois College of Medicine, Chicago, in 1903. The cause of death was a stroke of paralysis which occurred suddenly while the doctor was on his way home from his office, Saturday afternoon, December 17th. He is survived by his widow.

PECOS VALLEY MEDICAL ASSOCIATION

The Nineteenth Annual Session of the Pecos Valley Medical Association was held at Clovis, N. M., on December 12th, with scientific program in the Masonic Hall.

The meeting was called to order by the president, Dr. R. J. Bradley of Roswell, with about twenty-five physicians present from the counties of Eddy, Chaves, Lincoln, Lea, Furr, Roosevelt, Otero, DeBaca, Quay and Guadalupe, composing the district.

Rev. Howard Rogers of Clovis gave the invocation.

The Address of Welcome was given by Hon. A. W. Hockenull, attorney of Clovis, and was responded to by Dr. H. A. Ingalls of Roswell, on behalf of the Association.

The Annual Address of the president was delivered by Dr. Bradley, following which the minutes of the previous meeting were read and approved.

The remainder of the morning program was given over to demonstration of the methods of after-treatment of infantile paralysis by Miss Donnelly, of the Walter Reed Hospital, who has been working in the state under the State Department of Health, giving instruction to mothers, nurses and physicians who are not conversant with ortho-

pedic methods in the after care of poliomyelitis victims.

A delightful luncheon was served by the Clovis Medical Society, at the Harvey House.

At 2 p. m., the Association convened and the first paper was by Dr. G. Werley, of El Paso, on "Auricular Fibrillation," with exhibition of several clinical cases and explanation of electrocardiographic findings on the screen. (Note: this paper will appear in a subsequent issue of SOUTHWESTERN MEDICINE.)

Dr. G. H. Faget, of the United States Marine Hospital at Fort Stanton, ably exhibited and interpreted a series of x-ray films from the files of that hospital.

Dr. K. D. Lynch, of El Paso, read a very interesting paper on "Some Interesting Problems in the Diagnosis and Treatment of Genito-Urinary Tuberculosis." This paper was freely illustrated by lantern slides.

The above papers were freely discussed.

The following papers were read by titles:

"Case Records—Analysis—Methods," by Dr. E. C. Prentiss, of El Paso, who was kept from the meeting by the illness of his wife.

"Otitis Media Chronica in Childhood," by Dr. T. E. Preslev, Clovis, N. M.

"Meinicke Turbidity and Microscopic Test for Syphilis," by Dr. H. A. Miller, Clovis, N. M. These latter two papers were read by title as the authors desired to give their time to other papers of the program.

The election of officers for the ensuing year resulted as follows:

Dr. H. A. Stroup, Artesia, Eddy County, president.

Dr. C. F. Beeson, Roswell, Chaves County, secretary-treasurer.

Dr. D. D. Swearingin, Roswell, Chaves County, member board of censors.

The presidents of the county societies of the constituent counties are, by virtue of these offices, vice-presidents of the Association.

Roswell, N. M., was chosen as the place of the next meeting, the time to be fixed by the president and secretary.

It was unanimously agreed that this was one of the most profitable meetings of the Association ever held.

CHAS. F. BEESON,

Secretary.

PUBLIC HEALTH IS PLAIN COMMON SENSE

It is so seldom that we find plain economic logic applied to the field of public health, that we cannot refrain from re-quoting at length the following editorial which appeared in the Southwestern Dispatch of Roswell, N. M., December 23, 1927. These

comments refer to the situation created in Chaves County by the resignation of Dr. I. O. Church, full-time health officer of that county; they are applicable to any county in Arizona or New Mexico, whether a full time health officer is employed or whether that advanced stage of common sense in public health has not yet been attained:

"The board of commissioners of Chaves County are doing some pretty hard thinking in regard to the matter of county health officer, following the resignation of Dr. I. O. Church, who will be leaving in a few days to take up a new and bigger job out in California. It has seemed to a good many people, and the opinion has naturally reached the court that we have been paying a lot of money for this service, and just at present the people generally are sending up a mighty howl over the matter of increased taxation, while demanding a general policy of retrenchment. The present commissioners are truly representative of the people that elected them, in that they try to work out the problems presented to them in the best way for all concerned, and the members of the honorable body have put in some sleepless nights trying to whittle down the budget for 1928. One of the ways that has been suggested is by making the health officer a half time job, and employing a local physician for the job. While on its face this effects a substantial saving, a closer analysis of the proposal does not recommend it to all who have made a study of the health situation and particularly of the noble accomplishments of the outgoing physician. The reported choice of the board for the half time is one of the best physicians in New Mexico, and there is no better man personally in Roswell. He would probably come nearer giving complete satisfaction on a partial schedule than any doctor that could have been locally selected. However, there is much room for doubt whether with all of his attainments and high personal character, he could come anywhere near filling the exacting call, giving only half of his time. If it were possible to pay him enough to give it all, there could be little criticism of the plan, except the perhaps minor yet truly accurate one that no home doctor could ever in the world expect to get along with the local fraternity in comparative amity, much less depend upon their sympathy and co-operation. The appointment of any local man would be the signal for a row that would continue as long as the arrangement held. That Dr. Church was able to do such splendid work was in a large measure due to the fact that he came as a stranger, and staid one so far as the duties of his office were concerned. The doctors of Roswell are the best fellows in the world and collectively of very high grade, but they are just naturally built that way, and since everybody knows it, why evade the truth? The suggested appointee makes much more in his private practice than the salary of the full time health officer, and if he took the work on a fraction, he would not be human if he could stand up to the grind very long, with holding his own practice and keeping his average up publicly. This being the straight goods on the matter, there remains only the question whether Chaves County can afford to pay a full time officer. The Dispatch does not believe that it can afford to do anything else. The services of Dr. Church in the infantile paralysis outbreak paid for his services for a long while in actual economy, and in all likelihood was a strong factor in preventing the spectacle of a lot of little mounds out at South Park. Could any fractional man, no matter how good, be rationally expected to meet such a crisis successfully, carrying

his own large and important practice at the same time? We doubt it very much. The job of county health officer is a man's undertaking, if it is carried on as Dr. Church has performed. He is on the go all of the time, here, there and everywhere. He does an immense amount of work in his office, and is always accessible to the people, with prompt, courteous and correct service, right now. To pass from such service to a partial one, would be a step backward that would not be in accord with modern progressive spirit. The board of county commissioners are right in trying to save the people money, and are admitted to have considered the appointment of the best available man, but if they adopt the fractional plan, in our opinion, they will not be accomplishing the most good. Chaves County wants, needs and deserves a full time health officer, preferably selected just as far from Roswell as possible. It can not afford to do without one, after Dr. Church has shown how valuable such an official is."

GRANT COUNTY (N. M.) MEDICAL SOCIETY

Regular Grand County Medical Society meeting was held Nov. 25 and 27, Fort Bayard, N. M.

Present—Drs. Danielson, Parmenter, Geringer, McFarland, Bulson, Summers, Kylo, Edwards, Mann, Ferrill, Frazin and Wood.

Meeting called to order by Vice-President Frazin at 8:15.

The minutes of the last meeting were read and approved with one change—that of the word "Ephrenephredin" to "Ephedrin."

Dr. Bulson presented a Mexican child with syphilitic keratitis. He also demonstrated two enormous polypi removed from the nose of a Mexican laborer. He told of a case of vacuum headache relieved by puncture of the ethmoid. These cases were well presented and discussed by most all present.

Dr. Wood read a paper on Secondary Inestinal Tuberculosis. It was fully discussed.

The meeting adjourned at 10:00 p. m.

J. P. WOOD, Sec. and Treas.

GILA COUNTY MEDICAL SOCIETY

The regular annual meeting of the Gila County Medical Society was held at the Miami-Inspiration dispensary in Miami, the evening of January 11th. Officers for the year 1928 were elected, as follows:

Dr. T. C. Harper, Globe, president; Dr. Nelson D. Brayton, Miami, vice-president; Dr. Charles Irvin, Miami, secretary.

GILA COUNTY HOSPITAL STAFF (Globe, Ariz.)

At the meeting of the staff of the Gila County Hospital, held Tuesday evening, January 10th, Dr. Charles Irvin of Miami was elected chief-of-staff for the year. The division of the services for the indigent patients was made as follows:

First quarter—Drs. R. D. Kennedy and Chas. Perkins; Second quarter—Drs. W. C. Adams and O. E. Schreiner; Third quarter—Drs. Clarence Gunter and Charles Irvin; Fourth quarter—Drs. L. E. Wightman and N. D. Brayton.

CHAVES COUNTY (N. M.) MEDICAL SOCIETY

The Chaves County Medical Society held its annual banquet meeting in Roswell, at the Hotel Gilder, on December 31st. The officers elected were as follows:

President—Dr. J. E. McLane; Vice president—

Dr. A. P. Horwitz; Secretary-Treasurer—Dr. C. F. Beeson; Member board of censors—Dr. W. T. Joyner; all of Roswell.

The program for the coming year was discussed and outlined. It was voted unanimously that weekly meetings would continue and that the Case Records of the Massachusetts General Hospital would continue to hold a prominent place on the program, every one realizing the importance of diagnosis in medical practice and all appreciating the excellent way in which Dr. Cabot and his associates present their cases.

DRS. SWEARINGIN, PHILLIPS, INGALLS, HAYMAKER, MATHEWS and BEESON of Roswell, N. M., have all been taking postgraduate studies in the east and west, and have all recently returned to their respective practices.

DR. I. O. CHURCH, full time health officer for Chaves County, has recently resigned to take a similar position in California, leaving for his new post on January first. Dr. O. R. Haymaker is acting as health officer until a new man is secured for this full time position.

EL PASO CITY-COUNTY HOSPITAL

On December 28, the election of staff officers for 1928 was as follows:

Chief of the staff, Dr. E. J. Cummings; assistant chief of the staff, Dr. E. D. Strong; secretary and treasurer, Dr. Leslie Smith; Efficiency committee, Drs. Paul Gallagher, Stevenson and Newman.

No formal program was presented at this meeting.

EL PASO MASONIC HOSPITAL

On December 7, the El Paso Masonic Hospital Staff met and after conducting the usual business, the following case reports with discussions were presented:

Case 1. Presented by DR. JOHN CATHCART.

A case of almost total urinary suppression for nearly three weeks in an advanced case of carcinoma of the cervix with ureter involvement, was reviewed. Some sero-sanguineous secretion was voided on the fourteenth day of the terminal illness. The bladder was empty on catheterization and the ureters were entirely occluded. The patient died at about the eighteenth day of urinary suppression. On admission to the hospital the blood urea was 260 mg. and creatin 8.5.

Case 2. Presented by DR. H. E. STEVENSON.

Case of terminal pneumococcal meningitis. This was a case of a woman, about 56 years of age, who was a Christian Scientist. She gave a history of self treatment otitis media with "suggestions" from the neighborhood druggist. After a few days of illness the patient developed a classical meningitis secondary to an otitis media, and very promptly died.

Case 3. Presented by DRS. HUGH CROUSE and MATTIE HILL.

This was a case of terminal pellagra with autopsy report. All the details of the case were not available.

Case 4. Presented by DR. F. P. MILLER.

A case of operated diaphragmatic hernia complicated by a perforated gastric ulcer.

The patient was a Mexican woman, age 46, widow; occupation, ordinary housework and laundry. Family history: Father died of typhoid; one brother and one sister died in infancy from heart disease. No record of congenital anomalies. Mother lived to the age of 80 years.

Complaint: (1) Pain that begins as a throbbing under the ribs on the left side with an extension toward the anterior midline; (2) Constipation that is very obstinate, even persisting for seven days with-

out relief from purgation and enemas; (3) Vomiting which is usually associated with attacks of abdominal pain and persistent constipation; no relief except by stopping all food temporarily; she had noticed bloody vomitus many times with exacerbation of upper abdominal pain; hard work or some dietetic error would induce vomiting for some years past. (4) Gas is persistent and very distressing.

Past history: In 1913, during one of Villa's raids in Parral, she received a bayonet thrust through the arm extending into the chest at the seventh interspace midaxillary line, emerging in the third interspace anteriorly. With this injury she at no time coughed up blood or suffered much on account of the chest wound. However, much abdominal pain was experienced at that time and since. No serious illness since injury of either lungs or abdomen. Menopause two years ago.

Physical examination: The right thorax was essentially negative. On the left anterior and posterior surfaces, breath sounds were distant or absent. No sounds were found below the eighth interspace. Some dullness was elicited on percussion. At times rumblings of gas were heard on the anterior surface as low as the eighth rib and to the outer side of the heart. Heart; no murmurs but sounds were distant and indistinct; apex location not made out; blood pressure was 130-88. Abdomen retracted, scaroid in appearance, slightly tympanitic over left side of upper left quadrant as far as the nipple line. No masses were felt. Slightly tender on left costal margin. No gynecological examination was made, since no symptoms were referable to the pelvis. Scar on the left arm from injury described above, and in the mid-axillary line on the left side of the chest between the eighth and ninth ribs.

Working diagnosis: Hernia of diaphragm, left side, the result of traumatism.

Operation: Ether anesthesia. A long Bevan incision was made through the left rectus muscle. The area of the left diaphragm was exposed and the opening in the diaphragm inspected. The cecum and appendix were not only near the diaphragmatic opening at about the usual site of the splenic flexure, but also to the right of the descending colon. An undiagnosed gastric ulcer with adhesions was detached from the anterior abdominal wall and the ulcer crater was then touched with the cautery point, and sutured through and through with No. 1 catgut, and purse string sutures of Dulox and fine silk. The viscera were then withdrawn from the thorax. There was considerable difficulty in removing the adherent viscera from the pleural adhesions. The opening in the diaphragm was closed with large size silk sutures. The spleen was fastened to the suture line with mattress stitches of No. 2 catgut. The abdomen was closed without drainage with three tier catgut, reinforced with four through and through silkworm gut sutures. Hemorrhage first degree; shock, third degree.

Gross Findings: There was an ulcer on the anterior surface of the stomach in the upper third near the curvature, with adhesions to the stomach wall about three-fourths of an inch in diameter. The entire transverse colon, parts of the ascending and descending colon, all the small intestines, and the omentum were in the left side of the thorax. There was an opening in the outer side of the left diaphragm that would admit the right hand when the fingers were held in a cone-shaped position. There was no evidence of a sac. The omentum and colon were adherent to the sides of the opening, to the upper surface of the diaphragm, and to the pleural surface of the left lateral wall of the chest. The small intestine was covered with numerous small tuberculous looking masses resembling tuberculous peritonitis.

Dr. Miller in reporting the case said that he was

sorry that he had operated through the abdomen, as he believed that the intercostal route would have been better in this instance, because of the gastric ulcer and the adhesions to the anterior abdominal wall. The x-ray failed to be of any service in this case.

DISCUSSION: The question was asked, "What did the patient die of?" Dr. Miller replied that for the last fifteen minutes prior to death, the muscles of the patient's face and hands and neck twitched like a tetany. He stated that death came too early (four hours after operation) to come from acidosis; urinary examination on the day of operation showed no evidence of acidosis.

Dr. Leigh asked the cause of the patient's coming to the operation after such a long interval of time elapsing between the injury and the operation. Dr. Miller replied that the increase in the severity of the symptoms, namely, pain, nausea and vomiting, severe constipation, inability to eat and retain anything, and the necessity to do hard work for a living, caused her to seek surgical relief. Dr. Miller stated that the ulcer referred to had evidently, at one time, been perforated as it was adherent to the peritoneum at the time of operation.

Case 5. Presented by DR. HARRY LEIGH.

A case of primary non-suppurative encephalitis. Male baby, 15 months old, normal delivery and breast fed. Mother states that when baby was about five days old it had a violent infection of the eyes and came near losing its sight. The eyes were treated for months before making a complete recovery.

Complaint: Irritability, convulsions, fever and vomiting.

Course: The day before entrance into the hospital the child had been irritable and fretful all day; he ate poorly but food was not restricted. He had no fever during the day. The following morning the mother was awakened about three o'clock by the child in convulsions and vomiting. He was immediately brought to the hospital. By that time he was conscious, although still spastic. Pupils were equal. Neck somewhat stiff and retracted. Nothing abnormal about the chest or heart. The abdomen was somewhat distended by gas. There was no sign of paralysis. Neurological tests were unsatisfactory due to the general spasticity. Temperature on hospitalization was 104° F.

Working diagnosis: Gastro-entritis, but with an order for immediate spinal puncture. Thirty c.c. of spinal fluid was obtained under pressure; cell count was two cells per c.mm. but negative for globulin.

Final diagnosis: Non-suppurative encephalitis, primary. In two weeks the baby had made a satisfactory recovery. One month later he again had convulsions, but this attack proved to be due to intestinal intoxication. The neck was rigid for some days. A slight facial paralysis left in two weeks. The deep reflexes continued exaggerated throughout the course of the disease.

Diagnosis: Non-suppurative encephalitis—primary type.

Discussion: These cases generally occur in children under three years of age, but occasionally are found up to five years. I saw four cases last summer. One 18 months old baby had convulsions, facial paralysis, and looked at the time like a pronounced case of poliomyelitis of the bulbo-spinal type. Today the child has recovered except for an impediment of speech and a slight facial paralysis. *Primary, non-suppurative* encephalitis is often confused with poliomyelitis. Peterson was the first man to call attention to the fact that these cases occur simultaneously with epidemics of poliomyelitis. My cases all occurred during the summer months.

Secondary form: These occur secondary, or as a complication of some severe infectious disease, i. e.,

scarlet fever, measles, diphtheria, typhoid, smallpox, etc. Gastro-intestinal and tuberculous infections may simulate this form of encephalitis.

There are three fairly definite stages: The onset, the focal symptoms, and the residual phase. There is usually one day of prodromata, such as loss of appetite, vomiting, more or less apathy, temperatures ranging from 103-105, and irritability or even convulsions. It is not uncommon to find one arm or one leg flaccid or spastic and the child perfectly conscious. The neck is nearly always stiff. Focal symptoms develop the second or third day; symptoms vary with the locality affected. There is facial paralysis in two-thirds of the cases. The speech is often affected, but owing to the fact that the child's speech area is not well developed under three years mutism is rare. Nystagmus and ocular unbalance is usually present (seldom is pupillary reaction impaired). Sometimes the whole cerebrum is involved; death then ensues, depending upon the rate and extent of the involvement. The diffuse cerebral type is fatal in two or three days. Atrophic changes often involve nerves, muscles, skin and the bones, while athetoses and spastic paralysis are common vestiges. Permanent motor defects with spasticity alter locomotion and voluntary activities. Some of these children eventually become epileptics or imbeciles.

Pathology: The acute form is associated with hemorrhage. In this type there is round cell infiltration, hemorrhage, early thrombosis and softening. The area involved may fill with blood and become cystic. Some of these actually become so enormous that they encroach on the ventricle and produce extensive destruction. Diffuse small petechial hemorrhages may give a flea bitten appearance during the resorption period. The cell count may be normal, or it may reach 30 or 40 cells per c.mm. This is a definite non-lethargic, primary non-suppurative encephalitis usually limited to children under three years. Some workers are seriously considering this a type of poliomyelitis infection.

COUNTY MEDICAL WORK IN COCHISE COUNTY (Arizona).

The board of supervisors of Cochise County have selected DR. H. J. FRENCH of Bisbee, to serve as county physician for Cochise county and care for the indigent sick.

The following deputy physicians were selected for the various districts of the county:

DR. D. S. SCHENCK, Tombstone district; DR. GEORGE W. DUNNE, Douglas District; DR. F. W. RANDALL, Pearce and Courtland District; DR. B. E. BRISCOE, Willcox District; DR. R. E. YELLOTT, Benson District.

TULAREMIA IN ARIZONA AND NEW MEXICO

Instances of tularemia are being reported from several points in these two states. Several cases have been found around Santa Fe, and three cases have been reported from Flagstaff and vicinity; one case is reported from Phoenix. The Coconino Sun, in an issue of early January, gave a resume of the known facts about this disease, and this was quoted in full in the St. Johns Herald (Ariz.). The infection is transferred from rabbits to the human. The symptoms may be very mild or very severe; there may or may not be local manifestations. Diagnosis can be made after the first week or ten days by agglutination test, the blood having developed agglutins to the Bact. tularensis by that time.

In BISBEE, ARIZONA, the doctors and lawyers have been engaged in a volley ball tournament at the Y.M.C.A. The contest was won by the doctors with a team composed of DRS. FERGUSON, FRENCH, MOON and DURFEE. They were banqueting by the losing attorneys.

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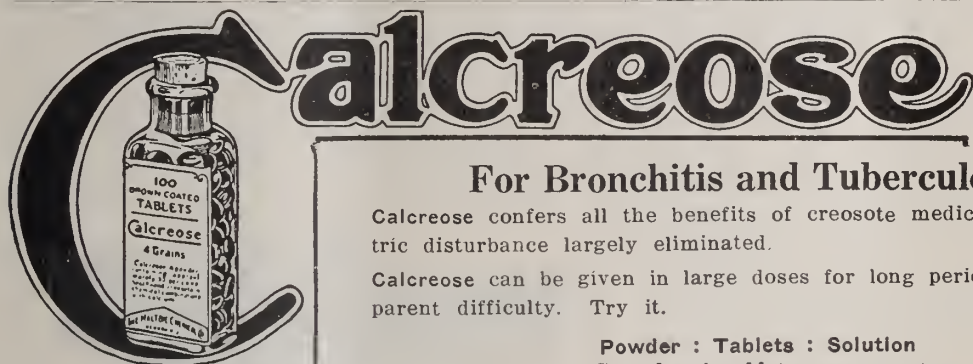
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PERSONALS AND NEWS.

ARIZONA

DR. W. W. HORST, of Globe, Ariz., has removed from this location and will locate in Los Angeles. He and Mrs. Horst (formerly Miss Edna Bundy of Globe) left for the coast about December 31. Dr. Horst was for several years with the Old Dominion Hospital, and later in private practice in Globe.

DR. GEORGE MADSEN, of the Desert Sanitarium, at Tucson, and MISS MAURINE DISMUKES of Globe, were married on Christmas Eve, at the Sanitarium in that city. Dr. Madsen recently resigned his position with the Old Dominion Hospital in Globe to become associated with the Sanitarium.

DR. CHARLES N. PLOUSSARD of Flagstaff, has removed to Phoenix, where he will be associated with Southwest Clinic. Dr. Ploussard has been located at Flagstaff a number of years, in association with Dr. A. H. Schermann at the Mercy Hospital.

DR. A. C. DONALDSON, formerly of Minneapolis, Minn., whose location in Chandler, Ariz., was noted in this journal last month, has opened offices in the Suharo Hotel. He and Mrs. Donaldson have their home temporarily at the Plaza Hotel.

DR. PAUL R. SIBERTS, of Somerton, motored to the coast.

DIPHTHERIA continues to be mildly epidemic in several sections of Arizona. This condition is no different from that which prevails the country over. There are being received about twenty-five reports of new cases each week by the State Health Department.

EPIDEMIC MENINGITIS appeared in Phoenix about the first of the year, and there have been some six or seven cases reported, to date. This is the first appearance of this infection in Phoenix for a number of years. Every effort is being made to control the spread of the infection.

DR. H. K. WILSON, of Holbrook, county health officer, has been inoculating against scarlet fever in the schools of the county.

DR. H. I. McNEILL, health officer for Mesa, Ariz., recently addressed the local Rotary Club, the burden of his talk being that the improvement in the quality of the milk sold in the community has made a very definite impression on the public health, there being decidedly fewer cases of illness of the sort which arises from this source.

DR. W. C. CAIN, of Yuma, recently won a suit in court for the collection of a bill, in which a counter suit for malpractice was filed. It is a pleasure to record such an outcome and to congratulate the doctor on taking this matter through the court and establishing his rights.

DR. FELIX MANNING, of Flagstaff, city and county health officer, working in conjunction with the State Dairy Commission and the U. S. Public Health Service, has placed in effect the model dairy ordinance, and all milk sold in Flagstaff after January first must be marked according to grade.

DR. A. C. ROUNSEVILLE, of Williams, paid a visit to Chicago the latter part of December.

DR. CHARLES S. VIVIAN of Phoenix, formerly with the Southwest Clinic, has severed his relations with the Clinic, and has moved his offices to the Heard Building, Phoenix, where he will continue his practice in the field of urology.

DR. S. B. GILLESPIE, formerly of Knoxville, Tenn., is now located at Sacaton, Ariz., with the United States Indian Service. He is a fairly frequent visitor to Phoenix over the excellent road which now connects these two points.

DR. NUGENT FROST, formerly of Humboldt, is located in practice at Kingman, Ariz.

DR. C. A. THOMAS, of Tucson, was recently operated upon for appendicitis. This was an interval operation and the doctor is reported as having completed his forenoon's work as a surgeon and then to have climbed upon the table and enacted the role of patient at the hands of his associates, observing the operation, which was performed under local anesthesia.

DR. GEORGE W. LANGDON, formerly of Oak Creek, Colo., has located in Safford, Ariz. Dr. Langdon is a graduate of the University of Colorado, class of 1914.

DR. PAUL ZINN, of Superior, has removed to Globe, Ariz., where he will be associated with the Old Dominion Hospital staff.

DR. W. F. CHENOWETH, of Nogales, was in Phoenix the first week in January attending the meeting of the Board of Medical Examiners.

DR. WM. LOWE, of Elizabeth, N. J., formerly associated with the Standard Oil Company as industrial surgeon, has moved to Phoenix, where he will locate. He was licensed at the January meeting of the Board of Medical Examiners. He is located temporarily at 842 N. 7th Ave.

DR. T. B. FITTS, of Nogales, Arizona, was a visitor in Phoenix early in January. He came for the purpose of placing his daughter in the Gregg School of Shorthand. Dr. Fitts is vice president of the Santa Cruz County Medical Society.

DR. FRED HOLMES, of Phoenix, has returned from a three weeks' visit to Drs. Matsen, of Port-

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land, Ore. The purpose of Dr. Holmes' trip was to observe the work of these specialists in thorascopic handling of pleural adhesions in connection with pneumothorax, a method of treatment which is slowly gaining adherents in this country.

The EAST FARM SANITARIUM of the PHOENIX INDIAN SCHOOL suffered a small outbreak of scarlet fever recently. The situation was promptly controlled by DR. A. H. WHEELER, physician for the sanitarium, who immediately immunized all contacts, so that the outbreak subsided with the three primary cases.

DR. H. A. REESE, city and county health officer for Yuma, Arizona, in his milk report for the month of December, gives the scores of the six dairies selling milk in the city. Four of these selling Grade A raw milk had scores ranging from 92 per cent to 97 per cent. One selling Grade A pasteurized milk had a score of 95 per cent. One with Grade B milk not sold raw, had a score of 78 per cent.

DR. AND MRS. NELSON D. BRAYTON, and daughter, of Miami, Ariz., returned early in January from a vacation holiday on the coast.

The STATE BOARD OF HEALTH OF ARIZONA reports that the first two cases of smallpox to develop in this state since July, 1927, were recently from Maricopa county, one case in Buckeye and one in Phoenix. Both were mild cases.

DR. H. D. BERLIN of Miami, Arizona, spent the Christmas vacation on the coast visiting relatives. He returned to his post with the Miami-Inspiration Hospital about January first.

DR. GEORGE PINESS, of Los Angeles, is reported to have been visiting Jerome, Arizona, for the purpose of investigating hay fever, at the invitation of the United Verde Copper company. Dr. Piness is a well known worker in the field of allergy.

NEW MEXICO.

A case of TULAREMIA has been reported from near Santa Fe, contracted by a Guadalupe County farmer in the usual manner, that is, by handling rabbits which prove to be infected.

MALARIA has become a serious menace in Dona Ana County, according to newspaper reports, quoting County Health Officer C. W. Gerber of Las Cruces. Malaria was introduced from the southern part of the United States, and has been spread by the indigenous mosquitoes.

DR. H. A. STROUP, of Artesia, N. M., was elected president of the Pecos Valley Medical Association, at their annual meeting in Clovis in December. DR. CHAS. F. BEESON was elected secretary.

SCARLET FEVER forced the closing of the schools at Mills, N. M., the middle of December, by order of the county health officer.

DR. HOWARD R. RAPER, of Albuquerque, (D.D.S.) whose work in radiography in dentistry has won national recognition, was recently awarded the Callahan Memorial medal by the Ohio State Dental Society for the outstanding scientific presentation during the year.

DR. JOSEPH FOSTER of Santa Fe, was among those attending the recent convention of the Radiological Society of North America in New Orleans, the first week in December.

DR. C. W. GERBER, county health officer of Dona Ana County, N. M., which is suffering from an invasion of malaria, has formulated plans for the eradication of this epidemic. In connection with the county farm bureau, a program has been worked out, and the fund of \$3500 required for this work will be raised.

DR. DOREMI, of Mexico City, is spending a period of rest in Deming, N. M., having arrived there recently for the benefit of his health.

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EL PASO COUNTY NEWS

DR. HAROLD KIRKHAM, of Houston, Texas, addressed the Southwest Orthodontists in El Paso, on December 5, on "Orthodontia and its Relation to Cleft Palates."

DR. G. WERLEY addressed the Clovis meeting of the Pecos Valley Medical Society, December 12, on "Auricular Fibrillation."

DR. K. D. LYNCH addressed the Clovis meeting on "Tuberculosis of the Kidney."

DR. ASRANIO de AMARAL, of San Antonio, who has charge of the production of serums for the treatment of snake bite, addressed the El Paso County Medical Society at a meeting open to the public on December 15. The doctor has long been engaged in a similar type of work in Rio de Janeiro. His discussion gave in detail the biochemistry of snake venom and the mechanism of the production of death. He emphasized the need of early treatment, particularly the local and the specific. In addition to local constrictions above the wound, multiple incisions and suction, he advised the injection of some of the anti-toxin in the immediate vicinity of the wound to destroy a neurotoxin. The Texas rattler, he regards as the most toxic of the common rattlers. Col. Martin L. Crimmins, U.S.A., retired, who devoted a great deal of time to this research, gave a brief history of the steps that had led to the final development of specific sera. Some 5000 lbs. of rattlers have been utilized in the past year in San Antonio to secure the needed amount of venom.

THE HEALTH DEPARTMENT reports a small epidemic of scarlet fever during the last few months. November had 75 cases, December 85 and at present there are 60 cases under quarantine. A total of 229 cases occurred during 1927. Diphtheria has almost ceased to exist under the practice of free immunization. At present there are three cases under quarantine.

DR. P. R. OUTLAW has been appointed to succeed Dr. R. A. Wilson, who retired on account of ill health. Dr. Outlaw was graduated from Bellevue Medical School, New York City, in 1893. He was employed by the New Orleans Health Department for two years, and by the Louisiana State Board for yellow fever quarantine, at that time stationed in Central America. For four years he was health officer at St. Tammany Parish, Louisiana. He spent three years in the army during the world war and was discharged with the rank of captain. He has been a resident of El Paso for fifteen years and has been connected in some capacity with the health department work for six years. He served as Assistant Health Officer for the last two years.

DR. and MRS. W. E. VANDEVERE spent the holidays in Dr. Vandever's old home in Mississippi; then visited Mrs. Vandever's home in Nashville, Tenn., after which they spent two or three weeks in New Orleans, where the doctor attended clinics.

DR. P. R. OUTLAW, city health officer of El Paso, plans a campaign of vaccination for the large number of new children coming into the schools, as well as for the unvaccinated adults. Dr. Outlaw also reported early in January that there were then some sixty cases of scarlet fever in the city, all of them mild.

CAMPAIGN FOR EARLY DIAGNOSIS OF TUBERCULOSIS

LINSLEY R. WILLIAMS, M. D.
Managing Director National Tuberculosis Association

(An Appeal to the Medical Profession)

I have recently heard of two interesting cases of

tuberculosis. One of these individuals was in the employ of a medical organization and while in apparent good health developed a pneumothorax suddenly. Upon being x-rayed, it was discovered that he has lesions of moderately advanced tuberculosis in the opposite lung.

The other case was that of a school boy, who had seen several of the best physicians. Only after an observation of several weeks and x-ray examination was it possible to make the diagnosis. The x-ray, however, showed lesions of moderately advanced tuberculosis.

These two cases explain the not infrequent development of lesions in the lung without giving rise to definite or suspicious clinical symptoms. They also point out the necessity of always suspecting tuberculosis and the importance of periodic complete physical examination of apparently well persons. The diagnosis is not easy and the physical signs may not readily be recognized. In making physical examinations, special attention should be given to auscultation and, above all, to stethoscopic auscultation on inspiration after expiratory cough. Lay "experts" sometimes have the impression that the diagnosis of pulmonary tuberculosis is easy and that doctors are incompetent because they do not make an immediate diagnosis. The diagnosis is often difficult, and the physician is frequently perplexed in making a decision.

The National Tuberculosis Association and its various affiliated associations will launch a publicity campaign for the early diagnosis of tuberculosis in March, 1928. The cooperation of physicians is sought, as it is not unlikely that a considerable number of their own patients or others may come to them for a physical examination. We sincerely hope that when patients do present themselves, an op-

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portunity will be arranged to give the individual a careful physical examination. If the physician recognizes that this is not his particular specialty, we trust that he will refer the patient to physicians who will be able to make such an examination. In the event that patients are found to be indigent or unable to pay for an examination, it is hoped that they will be referred to the proper clinic or dispensary for examination. An effort will be made prior to the launching of this campaign to secure the cooperation of medical societies to the end that they may arrange to hold meetings on the early diagnosis of tuberculosis and possibly for postgraduate courses in the diagnosis of the disease.

CORRECTIONS

Our attention has been called by an interested reader of this journal to two errors in names in the report of Dr. F. M. Pottenger's talk on the "Treatment of Tuberculosis" in our December issue, page 556. The name "Bevnier" should be Brehmer, as it refers to Dr. Herman Brehmer of Goerbersdorf, Germany. In the reference to his pupil, the name "Detwiler" should be Dettweiler. These errors were called to our attention by Dr. John Ritter of Chicago. The published discussion was from a stenographic report and was not submitted to Dr. Pottenger for correction before publication,—hence the errors.

On page 548, of the December journal, the article on "Symptomatology and Diagnosis of Chronic Appendicitis in Children," was read by Dr. F. C. Jordan, then of Chandler, Ariz., now located in Phoenix, and not by Dr. Dudley Fournier, as the journal has it.

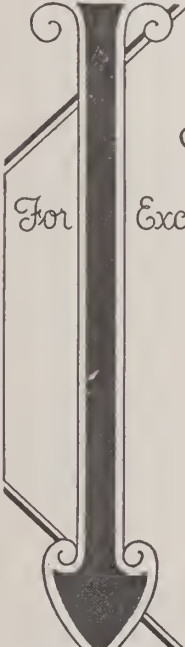
DIAGNOSTIC STANDARDS OF TUBERCULOSIS

In 1917 a Committee on Diagnostic Standards, organized by the National Tuberculosis Association, set to work to formulate as simply and accurately as possible standards and criteria for the diagnosis of tuberculosis. The seventh edition of Diagnostic Standards for Pulmonary and Glandular (Hilum) Tuberculosis was published November, 1926 in booklet form by the Committee, which at present consists of the following: Dr. John A. Smith,

Chairman and Secretary; Dr. Fred H. Heise, Dr. Alexius M. Forster, Dr. Henry D. Chadwick, Dr. Clarence L. Hyde, Dr. Walter L. Rathbun and Dr. J. Burns Amberson, Jr.

Minimum standards in the diagnosis of pulmonary tuberculosis are listed as follows:

1. When constitutional symptoms and definite past history are absent or slight, there should be demanded definite signs in the lungs, including persistent rales usually in the upper half of the lung, or definite and characteristic parenchymal changes as shown by the x-ray, or the finding of tubercle bacilli. (By 'persistent' is meant that the rales must be present after cough at two or more ex-



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aminations, the patient having been under observation at least one month.)

2. In the presence of constitutional symptoms, such as loss of weight and strength, etc., as defined above, there should be demanded some abnormality in the lungs on physical or x-ray examination or both (but not necessarily rales).

3. Usually a process in the upper half of the chest should be considered tuberculous and a process in the lower half non-tuberculous, until the contrary is proved.

4. Hemoptysis or pleurisy with effusion is only presumptive evidence of the disease.

5. Pain in the chest and shoulders, night-sweats, digestive disorders, etc., require careful examination of the lungs for evidence of the disease. The presence of any extra-pulmonary tuberculous lesion necessitates careful examination of the lungs. This includes especially fistula in ano, adenitis, joint tuberculosis, etc.

6. In every doubtful case one should demand that the patient be kept under observation and a record kept of pulse, temperature, weight, etc., for at least one month, with repeated sputum examinations, before a definite diagnosis is made. The importance of careful and thorough observation for at least one month is to be emphasized.

7. Tuberculin tests and other special laboratory diagnostic methods are of use only when in the hands of those specially trained and experienced in their interpretation.

The booklet also includes precise definitions of symptoms commonly encountered, classifications of diagnosis according to lesion and recommendations for the disposition of patients according to stage of disease. "Diagnostic Standards" may be obtained free from the National Tuberculosis Association, 370 Seventh Avenue, New York City.

BOOK REVIEWS

The Anatomy of the Nervous System—from the Standpoint of Development and Function, by Stephen Walter Ransom, M. D., Ph. D., professor of neuroanatomy, Washington University School of Medicine, St. Louis, Mo.; with 284 illustrations, some of them in colors; third edition, revised; W. B. Saunders Company, Philadelphia and London; 1927.

The publication of this volume was first in 1920. It was reprinted in 1921 and again in 1922; it was revised and reprinted in 1923 and reprinted in 1925 and 1926, and revised and reprinted in 1927. The frequent reprinting and revising of this volume is sufficient testimony of its value.

In the past twenty years there has come an understanding of the anatomy of the nervous system, and consequently an understanding of the function of the various parts thereof, such that the physician who has made no recent study of the subject will be astounded at the advances. Those of us who have not had occasion to open the newer textbooks, and remember the old ones, will indeed marvel when privileged to see a book such as Ransom has written.

An attempt to review such a work is exactly like trying to review Gray's anatomy—as I have said before. The author has the fortunate style of being concise. A great deal is said in a small amount of space. The book commends itself wonderfully to the busy practitioner who must do work with nervous diseases.

A Text-Book of Clinical Neurology, by Israel S. Wechsler, M. D., assistant professor of clinical neurology, Columbia University, New York; attending neurologist, The Montefiore Hospital, New York; il-

lustrated; W. B. Saunders Company; Philadelphia and London; 1927; \$7.00.

This book is a worthy companion piece to that splendid work by Professors Frederick Tilney and Henry Alsop Riley—*The Forms and Functions of the Nervous System*. Wechsler's book is devoted entirely to the clinical side of neurology.

There are 725 pages divided into five parts: part I devotes 120 pages to the Method of Examination; part II, 104 pages to The Spinal Cord; part III, 60 pages to the Peripheral Nerves; part IV, 348 pages to The Brain; and part V, 67 pages to The Neuroses. There are 24 pages devoted to a remarkably complete index—an extremely important portion of such a book. There are 127 illustrations, all carefully selected and beautifully produced.

The reviewer thinks it not too much to say that this is unquestionably the best and by long odds the most practical book upon clinical neurology in the English language.

How to Make the Periodic Health Examinations—A Manual of Procedure, by Eugene Lyman Fisk, M. D., Medical Director, Life Extension Institute; Foreword by Major-General Merritt W. Ireland, Surgeon General U. S. Army; MacMillan Company; New York; 1927.

This manual is prepared primarily for the purpose of helping physicians who make periodic health examinations. It stresses the routine of taking histories, making examinations, recording the findings, and presentation of conclusions and advice.

The book is a mine of useful information. It is written in what might be called outline form; therefore, a great deal is said in comparatively few words. For example, on page 145 we read, "absence of the deep reflexes should especially suggest the following disturbances: tabes dorsalis, neuritis, paresis, poliomyelitis, uremia, recent complete lesion of the cord, progressive muscular atrophy, syringomyelia, amyotrophic lateral sclerosis, post-epileptic states." On page 81 are given twelve separate examinations of the heart to make with the stethoscope. On page 263 begins a paragraph dealing with exercise. In the next several pages is given in concise form various types of exercise for correcting or improving various maladies. Scarcely a subject which is of general interest to the physician is left untouched. The section on endocrines, while brief, states the facts and what may be expected from treatment.

This book will be found useful as an encyclopedia of facts but more particularly as an aid in getting ready to make periodic health examinations.

O. H. B.

Affections of the Stomach, by Burrill B. Crohn, M.D., associate attending physician, to the Mt. Sinai Hospital, New York City; octavo of 902 pages with 361 illustrations, some in colors. Philadelphia and London. W. B. Saunders Company, 1927; cloth; \$10.00 net.

Although this is the third large volume upon affections of the stomach which the reviewer has read in the past few months this book was gone through with unusual amount of interest. The author deals with the subject as well as would be expected. He is easy to read. He quotes freely from literature and gives numerous references, at the end of the chapter.

This is a most satisfactory book upon the subject. Because of the numerous references, it will live. In his preface he says, "An inquiring search of the stock rooms of a modern library such as that of the New York Academy of Medicine acquaints one with the fact that the shelves contain

many dusty, often forgotten volumes written at the time by men standing at the head of the profession, names known in their day and generation as outstanding examples of ability and merit.'

The author has guarded against such a fatality for his volume by making the numerous references to the literature.

The reviewer regrets to note there are no references made to the allergic or anaphylactic disturbances of the stomach.

Infectious Diseases and Aseptic Nursing Technique; by D. D. L. Richardson, M.D., superintendent Providence (R.I.) City Hospital; W. B. Saunders Company, Philadelphia, 1927; 182 pp.; \$1.50.

Here is a clear, concise textbook on the principal infectious diseases, by a well known authority. The work is of particular appeal to nurses. Part I consists of lectures on the more common infectious diseases, discussed in the order of their importance or frequency. There are thirty diseases recorded, grouped to fall into fifteen lectures. For each disease a complete outline has been followed, discussing definition, etiology, epidemiology, mortality, immunity, incubation period, symptoms, complications, and treatment. Included in Part I is a chapter on "Infection and Immunity," describing the transmission of infectious diseases and the various kinds of immunity. Especially good is the chapter on "Care of Infectious Diseases at Home." Much emphasis can be laid on the paragraph "Release from Quarantine."

Part II is made up of regulations pertaining to the maintenance of an isolation hospital. This aseptic nursing technique has been carefully worked out and proven adequate at Providence City Hospital. The essential details, as the author points out, can easily be adapted to any construction or equipment. Thirteen of the illustrations

are photographs, taken at the providence City Hospital, showing technique and equipment.

The essentials in the education of nurses are covered in this volume, and this, together with its highly practical character, will make the book widely used in classrooms of up-to-date hospitals.

ELLA N. EATON, R.N.

Tiger Trails in Southern Asia, by Richard L. Sutton, M.D., Sc. D., LL. D., F. R. S. (Edin.); Fellow of the Royal Geographic Society; Professor of Dermatology, University of Kansas; Special representative, Department of Natural History, University of Missouri; with 115 original illustrations; The C. V. Mosby Company, St. Louis; 1926.

Red blooded men and women generally will enjoy reading Sutton's experiences and observations on Tiger Trails in Southern Asia. This is in no sense written primarily for medical men. So vividly portrayed are many of the experiences that the reader gets an almost first hand thrill in many of the places where the author describes happenings.

The reviewer found the book intensely interesting and probably a number of neglected duties may be directly chargeable to Dr. Sutton for having written so entertainingly of his travels.

The author's style of writing is, perhaps, better adapted to the presentation of countless facts on medical subjects in abbreviated space than it is for a finished literary product, but this does not detract materially from the interest of the book.

O. H. B.

A Textbook of Therapeutics—Including the Essentials of Pharmacology and Materia Medica; by A. A. Stevens, A. M., M. D., professor of applied therapeutics in the University of Pennsylvania, Philadelphia; visiting physician to the University and to the Philadelphia General Hospitals; seventh

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edition, entirely reset; W. B. Saunders Company, Philadelphia and London; 1927; \$6.50.

Since 1894, this book has been used as a text for medical teaching. It has been frequently revised and kept up-to-date.

Ephedrin, dial, insulin, and other recent acquisitions are discussed. In the paragraphs dealing with pernicious anemia, however, nothing is said of the use of liver, nor of hydrochloric acid.

The pages dealing with what the author calls "applied therapeutics," might well be omitted from a book dealing with materia medica in an encyclopedic fashion. One hundred seventy-four pages are scarcely adequate for handling the question of applied therapeutics on all the various diseases, especially in the encyclopedic style used in the materia medica section.

The author discusses physical measures but not with the thoroughness that would seem warranted in this day. His chapter upon electricity has likely not been rewritten for twenty years.

There is, however, a vast amount of useful material in the volume.

A Textbook of Physiology, for Medical Students and Physicians; by William H. Howell, Ph. D., M. D., Sc. D., LL. D., professor of physiology in the School of Hygiene and Public Health, The Johns Hopkins University, Baltimore; tenth edition, thoroughly revised; W. B. Saunders Company, Philadelphia and London; 1927; \$6.50.

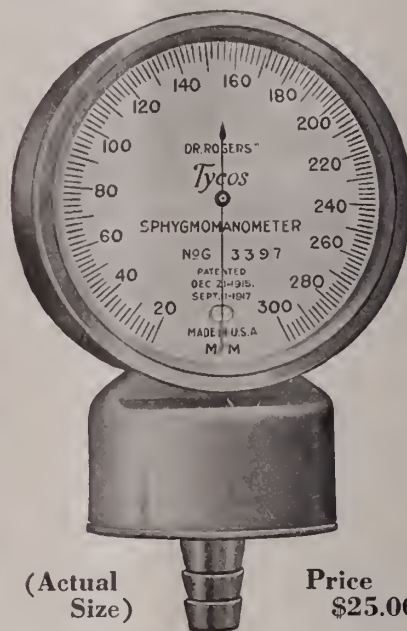
This text was written in 1905 and has had 32 editions since that time. Nine times it has been revised. What more glowing tribute can a reviewer pay a book than in those statements? Professor Howell has been identified with physiology so long and so intimately that none are more qualified to give the profession the facts in this all important field. This is another book that should be upon the physician's basic science book shelf.

LESIONS OF BONE. This study now includes practically 1000 cases. The predominant lesions are benign bone cysts (lesions of the shaft in children), the benign giant cell tumors (involving the epiphysis in adults), and sarcomas. The bone lesions nowadays are seen much earlier than formerly, and the x-ray characteristics are, therefore, somewhat different.

A central bone tumor in the shaft of a patient under fifteen years is almost certainly a bone cyst; if the patient is an adult it is more likely to be a chondroma or a metastatic tumor. When the epiphysis is involved it is usually a giant cell tumor, with rarer cases of chondroma, myxoma, metastatic tumor, myeloma. Brodie's abscess in the shaft differs little from a cyst. Therefore, a central bone lesion with intact bone shell does not call for amputation but conservative operation. Introduction of radium into bone cavities is not advised.

Of the periosteal bone lesions sarcoma in its varying picture, is most frequent. The sclerosing sarcoma is the most distinctive; even in the earliest x-rays there is an irregular cloud over the shaft of the bone, with a distinctly visible soft part shadow in the periosteal zone. In the osteoporosis sarcoma, the onset is usually in the shaft near the epiphysis, the bone being more porous, the picture being almost identical with the osteoporosis of non-use, with a thin, faint periosteal shadow. The excessively ossifying sarcoma is probably a late stage of the sclerosing sarcoma, and the destructive sarcoma is probably the late stage of the osteoporosis sarcoma. The periosteal sarcoma is still recognized though we know that the shaft is usually involved; however, there is a periosteal

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sarcoma resting on the shaft, replacing the periosteum, in which the x-ray can show no bone changes.

Of the benign periosteal lesions, the exostosis is distinguished by the normal cortical bone beneath the new bone formation. In ossifying periostitis from trauma or infection, the cortical bone may be involved, and the marrow shadow may not be distinct, so that the picture may be difficult to separate from sarcoma.

The order of frequency of the periosteal tumors is: osteoma, including exostosis and ossifying periostitis; chondroma, or osteochondroma; and myxoma.

Sarcoma may begin like an osteomyelitis, with intense pain, rapid swelling and fever, but without leucocytosis. The other inflammatory lesions of bone can usually be differentiated by the history and by x-ray findings; these include chronic osteomyelitis, tuberculosis, syphilitic periostitis or osteomyelitis.

A Brief Summary of Benign and Malignant Lesions of Bone. Joseph Colt Bloodgood, M. D., Baltimore, *Sou. Med. Jour.*, July, 1926, p. 541.

LISTER'S DISTRIBUTORS

In this issue appears a two page colored insert of Lister Bros., Inc., of New York City. For the convenience of readers, a list of their distributors in the field covered by this Journal is herewith given:

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Acetarsone-Abbott.—A brand of acetarsone-N. N. R. For a discussion of the actions, uses and dosage of acetarsone, see New and Non-official Remedies, 1927, p. 83. This product is supplied in substance and in 0.25 Gm. tablets. Abbott Laboratories, North Chicago.

Erysipelas Streptococcus Antitoxin (Concentrated) Mulford.—An erysipelas streptococcus antitoxin (New and Non-official Remedies, 1927, p. 337) prepared by injecting horses intradermally with strains of hemolytic streptococci isolated by H. Amoss from human cases of erysipelas lesions, bleeding the horses and when test bleedings show the serum to have reached the desired potency, separating the serum, sterilizing it, and preserving by the addition of 0.35 per cent of phenol. The product is then concentrated by a process which preserves both the antitoxic and antibacterial properties claimed to be in the original serum. The product is marked in packages of one 20 c.c. syringe. H. K. Mulford Co., Philadelphia.

Cholera Bacterin (Cholera Vaccine).—This cholera vaccine (New and Non-official Remedies, 1927, p. 358) is also marketed in packages of one 20 c.c. vial containing 1,000 million killed cholera vibrios per c.c. H. K. Mulford Co., Philadelphia. (Jour. A. M. A., September 10, 1927, p. 883.)

Iodoxybenzoates.—Iodoxybenzoic acid resembles

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salicylic acid, chemically differing in that the hydroxyl group of the latter has been replaced by an iodoxy group. The known actions of the salts of iodoxybenzoic acid, as developed by investigators, led up to its clinical application by Young and Youmans in the treatment of arthritis. The investigators, in their introduction of the substance, used the sodium salt or ammonium salt prepared extemporaneously; later, they recommended the use of ammonium iodoxybenzoate. The salts of iodoxybenzoic acid are indicated chiefly in arthritis. They are reported to be preferably administered intravenously; however, for cases in which the drug cannot be given intravenously, oral administration and administration by high enema have been employed and found effective.

Amiodoxyl Benzoate.—Ammonium O-iodoxybenzoate.—The ammonium salt of 2-iodoxybenzoic acid. The latter differs from orthohydroxybenzoic acid (salicylic acid) in that the hydroxy group is replaced by the iodoxy group. It contains 42.7 per cent of iodine. For a discussion of the actions and uses, see the preceding article "Iodoxybenzoates."

Amiodoxyl Benzoate-Abbott.—A brand of amiodoxyl benzoate—N. N. B. Abbott Laboratories, North Chicago.

Capsules Ephedrine Hydrochloride-Swan-Myers, 0.05 Gm.—Each capsule contains Ephedrine Hydrochloride-Swan-Myers (Jour. A. M. A., April 16, 1927, p. 1235) 0.05 Gm. Swan-Myers Co., Indianapolis.

Ephedrine Sulphate-Abbott.—A brand of ephedrine sulphate—N. N. R. For a discussion of the actions, uses and dosage of ephedrine sulphate, see THE JOURNAL, A. M. A., March 19, 1927, p. 925. Abbott Laboratories, North Chicago. (Jour. A.M.A., September 24, 1927, p. 1061.)

PROPAGANDA FOR REFORM

Artificial Ripening of Fruits by Ethylene.—While the use of ethylene as a means of ripening fruit is of growing commercial importance the health phases have not yet been thoroughly considered. Certain fruits and vegetables are recommended by physicians largely because of their vitamin content; whether or not this is altered by ethylene has not been determined. Possibly, also, the fruits and vegetables may be picked earlier than is the practice today, thus shortening the period of irradiation by the sun. Physicians may well watch the development of this form of food enterprise; perhaps the time may come when certain everyday foodstuffs will be purchased on the basis of vitamin units. In the meanwhile, the use of vitamin-containing products in as near a "naturally ripened" condition as possible should be encouraged when used for prophylaxis against avitaminosis. (Jour. A. M. A., September 3, 1927, p. 792.)

Treatment of Pernicious Anemia.—Minot and his co-workers report good results in the treatment of pernicious anemia by means of a diet composed especially of foods rich in complete proteins and iron—particularly liver—and containing an abundance of fruits and fresh vegetables and relatively low in fat. Koessler and his associates believe that in some cases, at least, the phenomena accompanying pernicious anemia are the result of long continued deficiency in vitamin A and possibly also in vitamins B and C and propose the treatment of pernicious anemia with a high caloric diet rich in vitamins. Therefore Minot and Koessler would prescribe an adequate general diet, including a large quantity of liver and kidney. Minot and his co-workers would reduce the fats whereas Koessler and his associates declare that butter, cream, milk and cod liver oil should be partaken of in large amounts. Macht reports that the blood serum of patients with pernicious anemia contains a toxin, and that this blood serum can be detoxified by

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irradiation with ultraviolet rays. Furthermore, he found that the effect of ultraviolet rays could be increased by introducing into the serum to be treated dyes which act as sensitizers. Since liver is the storehouse for blood pigments, some of these pigments may help increase the effectiveness of light and thus some of the good effects of liver diet may be connected with the liver pigments that are administered. (Jour. A. M. A., September 3, 1927, p. 793.)

Phosphobion Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Phosphobion, manufactured by Dr. Theodor Koenig, Munich, Germany (Carl F. Lauber, Philadelphia, distributor), are pills, each stated to contain zinc phosphide, 0.0025 Gm., and iron glycerophosphate, 0.03 Gm. According to the advertising, Phosphobion represents a new treatment for sleeplessness. It is claimed that sleeplessness is caused by a deficiency of phosphorus in the organism and that the phosphorus in Phosphobion has the power of supplying this deficiency. No evidence is offered in favor of the theories on which the claimed action of Phosphobion is based, nor convincing evidence in favor of its claimed action. The Council found Phosphobion unacceptable for New and Nonofficial Remedies because it is an unscientific mixture of drugs marketed under a nondescriptive name with claims that are not supported by acceptable evidence and in a way to lead to its ill advised use by the laity. (Jour. A. M. A., September 3, 1927, p. 809.)

Digitalization.—The term "digitalization" was coined to signify the full pharmacologic action of the drug to the limit of safety. Laboratorial and clinical investigations have developed the digitalization amount of digitalis to be, for a 150 pound (68 Kg.) adult weight, a minimum of 22½ grains (1.45 Gm.) and a maximum of 33 grains (2.2 Gm.). Half the minimum dose may be given at once and then 2 or 3 grains (0.13 to 0.2 Gm.) every six hours, or the other half of the minimum dose may be given on the second day. If the patient needs more digitalis for digitalization, the amount is gradually increased by 2 or 3 grains, perhaps every six hours, until symptoms of digitalization appear. Digitalization should not be attempted if the patient has previously been taking digitalis. The dosage advised, must of course be greatly modified with frail, underweight persons. An overweight person, when that weight is largely due to fat, must not be given doses according to his weight. The condition of the patient must also be taken into account. Digitalization means digitalis poisoning. Such poisoning should not be inaugurated except by a careful determination of the exact condition of a patient to be treated. The general practitioner should not thoughtlessly digitalize his patient unless he has hospital or other facilities for determining the exact condition of his heart and his excretory ability. (Jour. A. M. A., September 10, 1927, p. 884.)

The Standard Laboratories Fiasco.—About thirteen years ago a concern known as the Truax Laboratories was operating in Chicago. Its method was to sell to dispensing physicians individual packages containing stock prescriptions. When the physician had spent \$100 with the Truax Laboratories, he received a "profit-sharing debenture of \$25." Later the name of the concern was changed to "Standard Laboratories, Inc.," and the methods of doing business were also changed. The Standard Laboratories, Inc., got dispensing physicians to deposit \$100 with it, which was to be "taken out" in drugs. When the doctor had bought \$100 worth of drugs he was issued a "\$25 debenture profit-sharing certificate" that was worth nothing until 30,000 of them had been issued, at which time it would be

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accepted as stock in the company. In 1919, when the Standard Laboratories wished to advertise in The Journal of the American Medical Association, it was told that its methods were not such as would commend themselves to the ethical conscience of the profession. It was pointed out that the Principles of Medical Ethics states that "it is unprofessional . . . to accept rebates on prescriptions." Patently, the physician who held stock in the Standard Laboratories or who shared in its earnings was, in effect, accepting a rebate every time he prescribed its products. Present interest in this matter is stimulated by a small news item to the effect that Standard Laboratories, Inc., had just filed a voluntary petition in bankruptcy in the United States District Court. (Jour. A. M. A., September 10, 1927, p. 886.)

Ago-Cholan Tablets.—The statements made by E. Bilhuber, Inc., regarding the composition of Ago-Cholan are contradictory and indefinite. An advertising card sent out during 1926 gives "strontium cholo-salicylate" as a synonym. An advertisement published the same year declares that "chemocalyit is strontium-cholosalicilate to which is added a small quantity of phenolphthalein-diacetate. . ." A circular received in 1925 gives the following "composition": "Ago-Cholan contains as its active principle the combined cholic and salicylic acid salts of strontium (2 grains in each tablet) and a small quantity of phenolphthalein-diacetate (0.2 grain." From the latter statement one may conclude that the "strontium cholosalicilate" is nothing more than a mixture of the cholic and salicylic acid salts of strontium in unstated proportions. Available books on therapeutics do not refer to the use of phenolphthalein diacetate. E. Bilhuber, Inc., has not requested an examination of the product by the Council on Pharmacy and Chemistry, and so far the Council has not examined the product or the claims that are made for it. (Jour. A. M. A., September 10, 1927, p. 901.)

The Administration of Calcium Salts.—The intravenous and subcutaneous administration of calcium are attended with dangers or discomfures; therefore, the possibilities of the oral route call for careful consideration. A survey of the literature on the absorption of calcium as it may be reflected in a change in the blood concentration of the element might leave one unconvinced of the efficacy of administering calcium compounds by mouth. Many clinicians have accordingly abandoned the practice. More recent studies give evidence, however, that with due attention to the conditions of administration it is possible to elevate the serum calcium concentration by the oral route of calcium supply. Experiments indicated that the optimal dose of calcium lactate is 5 Gm. and that the drug must be given in aqueous solutions when the digestive tract is comparatively empty; that is, either before breakfast or several hours after food has been consumed. Larger doses prevent optimal absorption. (Jour. A. M. A., September 17, 1927, p. 968.)

Gelobarin Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Gelobarin is the trade-marked name under which the Powers-Weightman-Rosengarten Company markets a mixture of barium sulphate and water, containing approximately 40 per cent of barium sulphate. The preparation is proposed for use in radiologic examinations. The Council found Gelobarin unacceptable for New and Nonofficial Remedies because it is an unoriginal product that is offered under a proprietary, nondescriptive name. (Jour. A. M. A., September 17, 1927, p. 984.)

Gonococcus Immunogen, Gonococcus Immunogen Combined, Streptococcus Immunogen, Streptococcus Immunogen Combined, Pertussis Immunogen

Combined, and Pneumococcus Immunogen Combined Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Immunogen is the name applied by Parke, Davis & Co. to bacterial antigen products free or nearly free from bacterial cells and toxin. The firm requested the Council to consider a number (twelve) of these products in 1924. The Council decided to consider eligible for acceptance those simple immunogens in the case of which similar bacterial vaccines stood accepted. Regarding the "mixed" immunogens which had been presented, the firm was informed that adequate evidence for the value of these preparations was lacking, but that any new evidence for their therapeutic value would be considered. The firm presented evidence which permitted the acceptance of two of the simple immunogens. In view of the inquiries received concerning the advertising claims made for immunogens, Parke, Davis & Co. was informed that the Council desired to take definite action in regard to those which had not been made acceptable. The firm was requested to send the advertising for the, as yet unaccepted, immunogens that were being marketed together with any further information which would aid in determining their acceptability for inclusion in New and Nonofficial Remedies. On the basis of the available evidence the Council denied admission of the gonococcus and streptococcus immunogens to New and Nonofficial Remedies because no simple vaccines representing these organisms stand accepted; the "combined" immunogens (Gonococcus Immunogen Combined, Streptococcus Immunogen Combined, Pertussis Immunogen Combined, Pneumococcus Immunogen Combined) are held unacceptable for lack of adequate evidence of their therapeutic value. (Jour. A. M. A., September 17, 1927, p. 984.)

Methenamine.—Methenamine is the name adopted by the U. S. Pharmacopeia, Tenth Revision (which became official a year and a half ago), for Hexamethylenetetramine, described in the previous Pharmacopeia as Hexamethylenamine. (Jour. A. M. A., September 17, 1927, p. 987.)

Yeast.—Yeast is rich in vitamin B. This is the only vitamin which it contains in important quantity as far as is known at present. According to New and Nonofficial Remedies 1927, yeast has been used (a) in the past as a bactericide in the treatment of superficial infections, but this use of yeast has been practically abandoned; (b) as a source of vitamin B, for which yeast has been widely extolled; but, under usual conditions, the vitamin B requirement can be met by customary foods; (c) as a laxative, but only in case it does not cause intestinal distention; (d) in the past, as an internal remedy for furuncles and acne, but it is doubtful whether the benefit is in excess of the laxative effect; (e) as a stimulator of leukocytosis, but its efficacy in this respect is doubtful. The yeast obtained in grocery stores is essentially "brewers' yeast." It may be obtained either in semi-solid form or in the form rendered solid by the addition of absorbent material. (Jour. A. M. A., September 27, 1927, p. 1080.)

Ethylene-II.—The A. M. A. Chemical Laboratory reports another examination of the quality of ethylene for anesthesia which is on the market. The Laboratory reports on the composition of "Ethylene for Anesthesia" of the Certified Laboratory Products (which has been accepted for New and Nonofficial Remedies) and a specimen of the ethylene of the Kansas City Oxygen Gas Company, the quality of which had been questioned in a hospital. The laboratory found both products to meet the requirements of New and Nonofficial Remedies. The Laboratory repeats its previous recommendation, that physicians use only the brands of ethy-

lene described in New and Nonofficial Remedies. (Jour. A. M. A., August 6, 1927, p. 451.)

J. M. Harris—Quack.—James S. Harris, Tulsa, Oklahoma, has for some years been quacking it in the "cancer cure" line, selling "Radium Oil." The Supreme Court of Oklahoma has recently affirmed the judgment of the trial court that had awarded a woman ten thousand dollars damages because Harris had treated what at the outset was an operable case of cancer of the breast and allowed the matter to progress until it became inoperable. (Jour. A. M. A., August 6, 1927, p. 468.)

Grapefruit Infusions.—The use of a cold water infusion of whole grapefruit (including peel and pulp) seems to be one of the fads of Frank McCoy, who dispenses so much dietetic information that isn't so. According to McCoy, grapefruit "contains organic quinine," which, he declares has "a quicker effect than the inorganic form of quinine used in tablet form." According to McCoy, this infusion of grapefruit is "valuable in its action upon the liver and gallbladder in the elimination of gallstones." Few men have a larger fund of dietetic misinformation than that possessed by Frank McCoy. (Jour. A. M. A., August 6, 1927, p. 470.)

Liver Extracts in Anemia.—The striking effect of feeding liver and certain preparations of liver on a number of physiological processes has been established. In the case of growing animals, it appears to promote rapid gains in size. The extraordinary effect of diets including liver on severe anemias of long standing in dogs has been shown. Vigorous regeneration of hemoglobin and red blood cells can be brought about by feeding the hepatic tissue of various species, beef, pig, sheep, calf and chicken having been tested with unquestionable success. Striking effects have been obtained in pernicious anemia with diets containing large amounts of liv-

er in one form or another. Studies undertaken to determine the constituents of liver which are effective in pernicious anemia have been made and potent concentrates have been obtained. (Jour. A. M. A., August 13, 1927, p. 524.)

Lucky Tiger.—This is a dangerous nostrum sold for the treatment of dandruff, eczema and sore feet. Because of reports of severe skin irritation following the use of "Lucky Tiger," the A. M. A. Chemical Laboratory analyzed it. The Laboratory concluded that the preparation consists essentially of ethyl (grain) alcohol, methyl (wood) alcohol, sodium salicylate and sodium arsenite. The amount of arsenic present as sodium arsenite was about one-tenth as much as found in solution of potassium arsenite (Fowler's solution). When the amount of the preparation that will be used in an application is considered, it can be readily appreciated what a relatively strong solution of arsenic this is. This preparation has no place among legitimate home remedies. (Jour. A. M. A., August 13, 1927, p. 541.)

Lukosine Not Acceptable for N. N. R. *II.—Since publication of the report of the Council on Pharmacy and Chemistry on Lukosine the National Drug Co. has informed the Council that quantitative formula for the preparation is given in its price list and in its "revised advertising." The latter contains the following formula: "Boric acid, 80.5 per cent; Alum, 9.2 per cent; Zinc Sulphate dried, 4.0 per cent; Zinc Phenolsulphate (Phenosulphonate?), 2.5 per cent; Sodium Salicylate, 2.5 per cent; Phenol, 1.0 per cent, rendered pleasantly aromatic with a blend of Thyme, Peppermint, Eucalyptus and Methyl Salicylate. Each heaping teaspoonful contains 1/75 grain of Hydrastine Alkaloid." In view of this the Council revises its statement by the omission of the word "semisecret" to read: "Lukosine is unacceptable for N. N. R. because it is a



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needlessly complex, and therefore irrational, mixture, marketed with a therapeutically suggestive name and with unwarranted therapeutic claims, in such a way as to lead to its indiscriminate and ill advised use by the public." (Jour. A. M. A., August 13, 1927, p. 542.)

Digitalis.—It is well known that many cardiac patients who fail to improve with full digitalization owing to some unknown condition, show marked improvement when the same specimen of digitalis is given subsequently. Such cases afford opportunity for attributing extraordinary value to any digitalis preparation that the clinician happens to employ in the second course of treatment. (Jour. A. M. A., August 13, 1927, p. 543.)

Fumigation and Antiseptics.—To prevent the spread of contagion, personal cleanliness, mechanical cleansing of contaminated areas and the boiling or burning of articles that are grossly contaminated is much simpler and safer than the use of antiseptics and fumigation. These often do little more than to give a false sense of security and leave a disagreeable odor. (Jour. A. M. A., August 20, 1927 p. 537.)

Harrell Associated Chemists.—Harrell Associated Chemists, 322 W. Washington St., Chicago, exploit a mail order cure for rheumatism. As the head of the organization one J. Randolph Harrell is put forward. In the advertising he is styled "Professor" and advertised as "an authority on physiological chemistry." The facts are, Harrell is unknown to reputable medicine pharmacy or chemistry. (Jour. A. M. A., August 20 1927, p. 537.)

Alpha-Lobeline.—The Council on Pharmacy and Chemistry reports that under the name "Alpha-Lobeline," Ernst Bischoff Co., Inc., markets a solution of the hydrochloride of the alkaloid alpha-lobeline. The product is marketed in ampules stated to contain, respectively, 1/6 grain and 1/20 grain of alpha-lobelin hydrochloride. The product was submitted to the Council with the claim that its use was indicated in "asphyxiations, shocks and poisoning where there is central respiratory depression." The Council's report states that alpha-lobeline has been very extensively advertised with claims that are extravagant, often bordering on the sensational. The evidence as to the value and safety of the product is still so incomplete that the Council has been unable to reach a definite conclusion. The Council calls attention to a circular issued by the American distributors containing a "Partial List of Hospitals using Alpha Lobelin" and to a paper by Norris and Weiss. To learn something as to the experience of some of these hospitals with the drug letters were written to twenty-seven of the more prominent of them. While the reports of some of these hospitals are favorable to the use of the drug (although it cannot be said that they are at all conclusive), it is evident that the circular containing this list of hospitals "where the drug is being used" gives an erroneous impression as to the extent of its use and of the results to be expected. The paper by Norris and Weiss and other papers which have been published contain no conclusive evidence regarding the usefulness of alpha-lobeline. Since adequate evidence for the therapeutic usefulness of alpha-lobeline is lacking at the present time, the Council has postponed definite action in regard to the eligibility of the drug for inclusion in New and Nonofficial Remedies. (Jour. A. M. A., August 27, 1927 p. 693.)

Some Recent Observations on the Fat Soluble Vitamins.—The concentrate of vitamins A and D represented by the nonsaponifiable fraction of cod liver oil is not effective in herbivora unless it is fed dissolved in oil. These observations have been confirmed in the case of an omnivorous species. This

makes one question the advisability of attempting to supply vitamins to man in the form of dry concentrates unless the latter are given in oil or in close proximity to a meal that carries fat. The ready solubility of vitamins A and D in fats made it seem likely that liquid petrolatum would also be a good solvent. Since the latter is not absorbed from the gastro-intestinal tract, and since it has a widespread use as a laxative it is important to ascertain whether the fat-soluble vitamins in the food are liable to be "diverted" from alimentary absorption by the presence of the nonabsorbable liquid petrolatum solvent. It has been shown that liquid petrolatum may act as a solvent for vitamin A, thereby depleting ingested foods of their supply of this factor. A comparable influence on the antirachitic vitamin has not yet been demonstrated, though it may naturally be expected if liberal amounts of liquid petrolatum are ingested. Attempts have been made to increase the antirachitic potency of cod liver oil by irradiation. The evidence indicates that this is not feasible. (Jour. A. M. A., August 27, 1927, p. 694.)

Revising the Pharmacopeia.—Apparently some misunderstanding as to the exact nature of the United States Pharmacopeia has given opportunity for criticism of the work of the Revision Committee, particularly of the Subcommittees on Scope and Nomenclature. The first edition of the United States Pharmacopeia, published in 1820, expressed the purpose of selecting from among the substances used in medicine those remedies most worthy of medical employment. To any one at all familiar with the progress of the U. S. Pharmacopeia, it is obvious that it tends more and more to become a scientifically reliable work, to realizing more and more greatly the necessity for established proof of virtue before admission can be granted. (Jour. A. M. A., August 27, 1927, p. 697.)

Hexol Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Hexol (formerly called Maxol) is manufactured by the Sanitary Supply Co. and is a pine oil soap solution stated to have the following composition: Pine oil, 65 per cent; rosin soap, 10 per cent; cocoanut oil soap 10 per cent; water, 15 per cent. It belongs, therefore, in the class of pine oil disinfectants which were introduced some twenty years ago in the expectation that they would replace the cresol soap solutions such as Lignol Cresolis Compositus. The Council points out that the name of this unoriginal compound is not descriptive of the composition, and is also misleading in that it suggests the product to be an alcohol containing six carbon atoms. The council reports on the lack of acceptable evidence for the claims that are made for the preparation and calls attention to a government bulletin giving notice of manufacturers of pine oil disinfectants in regard to the evidence which should be obtained before such products are recommended as general disinfectants. The Council found Hexol unacceptable for New and Nonofficial Remedies because it is an unoriginal mixture marketed under a nondescriptive, proprietary name, and because it is marketed under claims that are unwarranted in the light of available evidence. (Jour. A. M. A., August 27, 1927, p. 711.)

Bromural.—2-monobromisovalerylurea, obtained by the interaction of urea with bromisovaleryl bromide, Bromural is a nerve sedative which produces sleep in mild cases of insomnia without markedly affecting the circulation or respiration. It is claimed to be useful as a nerve sedative and for the purpose of inducing sleep in functional nervous disease. Bromural is not effective in cases of insomnia associated with pain, cough, angina pectoris or delirium. It is supplied in substance

and in five-grain tablets. E. Bilhuber, Inc., New York. (Jour. A. M. A., October 8, 1927, p. 1251.)

Erysipelas Streptococcus Antitoxin, Refined and Concentrated—P. D. & Co.—An erysipelas streptococcus antitoxin (New and Non-official Remedies, 1927, p. 337) prepared by immunizing horses with cultures of streptococcus isolated from erysipelas. The potency of the product is declared in "units" a unit representing the amount of antitoxin required to neutralize one skin test dose of toxin. It is marketed in packages of one piston syringe containing 500,000 units. Parke, Davis & Co., Detroit. (Jour. A. M. A., October 15, 1927, p. 1335.)

Weldona—A Piece of "Rheumatism Cure" Quackery.—In 1922 it was reported that an adult, with marked jaundice, was dying after continued use of Weldona tablets. At that time an analysis of Weldona had shown the presence of sodium salicylate. In 1924 an analysis showed the "Weldona Treatment" to consist of small, white tablets containing an emodin-bearing extract, and large, lavender-coated tablets containing sodium salicylate and an unidentified vegetable extractive. In 1925, the Boston Medical and Surgical Journal gave some case reports by Dr. Richard C. Cabot in which it was stated that a series of cases of acute yellow atrophy in patients having taken Weldona had come to his notice. In 1925, the Health Bureau of Rochester, New York, made some tests of Weldona and reported that unidentified alkaloids were found, together with salicylates or salicylic acid. In 1926, the A. M. A. Chemical Laboratory found the lavender colored tablets to consist essentially of salicylic acid and acetylsalicylic acid, extractives of an emodin-bearing drug with vegetable extractives, ground ginger and cinnamon. The medicinal part of the white tablets was found to consist of extract of cascara. Now, in 1927, advertisements for

Weldona are offered newspapers and to one such paper, the advertising agency handling the advertising gave the following as ingredients of Weldona: neocinchophen, extract of cimicifuga, fluid extract of phytolacca, magnesium carbonate light and powdered extract of cascara sagrada. A commercial laboratory that analyzed Weldona in September, 1927, reported that it consisted largely of vegetable matter, with about 5½ per cent of mineral matter. The vegetable matter was, apparently, phytolacca and cascara sagrada, together with acetylsalicylic acid (aspirin) and salicylic acid. The laboratory did not satisfactorily prove the presence or absence of neocinchophen, but did report that tests for alkaloids showed none present. It seems evident from these several analyses that Weldona, like so many other "patent medicines", is a name rather than a thing—while the name has remained constant, the composition has varied. (Jour. A. M. A., October 1, 1927, p. 1167.)

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Arizona State Medical Association, Tucson, April 19, 20, 21, 1928
New Mexico Medical Society, Albuquerque, May 10, 11, 12, 1928

SOUTHWESTERN MEDICINE

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FEBRUARY, 1928

OFFICIAL ORGAN
OF THE
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ARIZONA STATE MEDICAL ASSOCIATION
EL PASO COUNTY (TEXAS) MEDICAL SOCIETY
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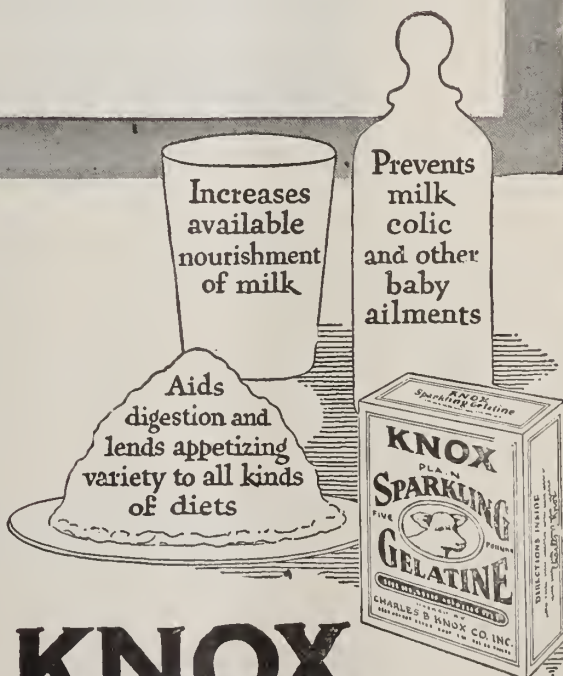
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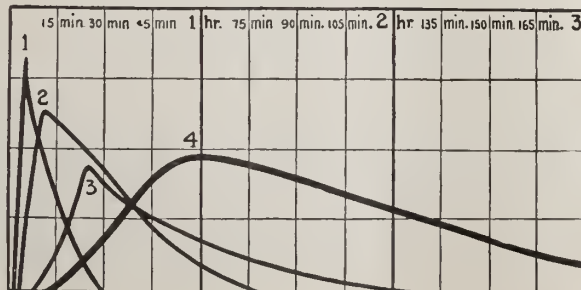
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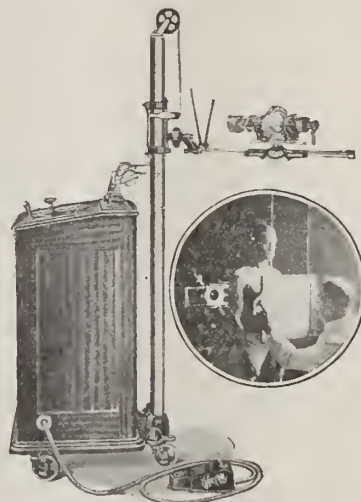
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MYCOLOGY—ITS GROWING IMPORTANCE IN THE PRACTICE OF MEDICINE.

RALPH W. MENDELSON, M. D.,
Albuquerque, N. M.

North American practitioners are, perhaps, the least appreciative of any of the medical profession with regard to the importance of fungi as causative factors in a variety of diseases. The reason for this is a lack of instruction in our medical schools. I know of but one medical school giving a course in clinical mycology. Eventually this defect will be remedied, because we are gradually being educated to a fuller appreciation of the importance of fungi in medicine.

The history of mycology dates back to the reign of Charles II, when Hook, with a lens of his own making, carefully examined the blight of the damask rose and illustrated his findings. Up to the latter part of the eighteenth century progress was slow. The men of that time who made important investigations were Malpighi, Ray, Micheli, Linnaeus, Lightfoot, Pelham, Batsch, Bulliard and others. From 1800, progress has been much more rapid. Up to 1837 the study of fungi was rather a systematic problem, and it was not until Ramak, in 1837, discovered the parasitic fungi in ring-worm that particular attention was paid to the microfungi as possible factors in the causation of human ills.

Important contributions were made by Schoenlein, Gruby, Malmsten, Carter and Manson. Later we have such men as Sabouraud, Brumpt and Pinoy, and today we have here in the United States no less a man than Castellani, professor of Tropical Medicine at Tulane, who has contributed so very profusely to the knowledge of pathogenic fungi.

Mycology is of specific importance to men practicing in our southern states. With an ever-increasing intimacy with Central and South America we may expect to meet a

greater variety of mycoses, both dermal and visceral.

Although the present day classification of the pathogenic microfungi is in a chaotic state, it may be of interest to the reader to know the basis of all classifications. The vegetal kingdom is divided into six phyla:

- 1—Myxophyta—or slime moulds.
- 2—Schizophyta—or fission fungi.
- 3—Thallophyta—including algae, fungi and lichens.
- 4—Bryophyta—mosses.
- 5—Pteridophyta—ferns.
- 6—Spermatophyta—seed plants.

The phyla of interest to the medical man are:

- 1—Schizophyta, embracing the classes:

A—Schizomycetes

Order—Eubacteriales

Examples:

- 1—Spirillaceae
- 2—Coccaceae
- 3—Bacillaceae, etc.

B—Schizophyceae—blue green fungi, of no interest medically.

- 2—Thallophyta—algae, fungi, lichens.

Only the fungi are of interest medically. Fungi belong to the Thallophyta having no chromatophores or chlorophyll, as they subsist on decaying animal or vegetal matter rich in organic substances and do not require sunlight in the manufacture of their food. The fungaceae may be either saprophytic or parasitic, and under varying conditions, may change from one state to the other. The further classification of the fungi proper is rather bewildering. The various authorities have been more or less original and the student of mycology awaits with considerable interest a recognized international classification.

Practical mycology has to do with the diagnosis and treatment of established mycologic disease entities. As interest in the subject grows, research will reveal an ever-increasing number of fungus diseases and it behooves the general practitioner to have a working knowledge of the subject.

The diagnosis of a dermatomycosis is not such a difficult task ordinarily. In suspected cases we take a few scales and digest them in a drop or two of ten per cent potassium hydroxide; pressing a cover glass on the slide, we examine first with high dry lens and then with the oil immersion. Various stains may be used, but the best results are obtained by examining the specimen unstained with the aid of the dark field just as one would examine for spirochaetes. In those cases in which a diagnosis can not be made by direct microscopic examination, one may collect some of the scrapings in a test tube and forward them to a reliable laboratory where cultural tests will reveal the nature of the infection.

The most common mycotic diseases described in the United States are actinomy-

cosis, blastomycosis, mycetoma, ringworm, tinea versicolor, sporotrichosis. We sometimes hear of an imported case of favus. As a general proposition, not a great deal of attention is paid to fungus diseases except by the dermatologist.

The following cases, except one, are from the tropical Orient and illustrative, to a degree, of the variety of skin lesions produced by pathogenic microfungi. There are a variety of fungus diseases of the internal organs that do not lend themselves to photographic illustration. Case number 6, for example, is that of a colored female, a resident of New Orleans, suffering from a chronic pulmonary mycosis; it will be taken up later.



Fig. 1 (Case 1). Showing the appearance of the skin lesions of Tinea Alba.

Case 1—Tinea Alba.

First described by Castellani in 1905. It is caused by the *Epidermophyton rubrum* Castellani, 1909, and *Atrachophyton macfadyeni* Castellani, 1905. It may be limited to the extremities or involve the entire body. In chronic cases, white leucoderms patches develop, in which no fungus is found. It responds to the application of a 3 per cent chrysarobin ointment.



Fig. 2 (Case 1). Drawing by the author, showing the appearance of the *Epidermophyton rubrum* Castellani, the fungus causing Tinea Alba.



Fig. 3 (Case 2). Drawing of the *Malassezia tropica* Castellani, the fungus causing Tinea Flava.



Fig. 4 (Case 2). The appearance of the skin lesions of Tinea Flava.

Case 2—Tinea Flava

This condition is also known as Tropical Pityriasis Versicolor. It is due to *Malassezia tropica* Castellani, 1905. It is, as a rule, a non-puritic, non-desquamating dermatomycosis producing a yellowish pigmentation. The entire body may become affected. It is quite resistant to treatment. A salicylic-resorcin ointment produces the best results.



Fig. 5 (Case 3). The appearance of Tinea Nigra in patient with leprosy.

Case 3—Tinea Nigra

The patient is a leper and has suffered from the dermatomycosis for years. The disease, Tinea Nigra, is caused by a fungus of the genus *Cladosporium*—*C. Mansoni* Castellani, 1905. It is a non-pruritic, slightly desquamating condition, producing a black pigmentation. It responds quickly to a mild salicylic ointment.



Fig. 6 Case 3). Drawing of the fungus, *Cladosporium Mansoni* Castellani, the etiologic agent in Tinea Nigra.



Fig. 7 (Case 4). Patient with Tinea Capitis Tropicalis, caused by a variety of fungi.

Case 4—Tinea Capitis Tropicalis

This condition is caused by a great variety of fungi, several from the genus *Microsporum* Gruby, 1843; the genus *Trichophyton* Malmsten, 1848; the genus *Ectotrichophyton* Castellani and Chalmers, 1918; and the genus *Achorion* Remak, 1845. Clinically, the condition differs but slightly as seen in America. Castellani has recently discovered a new variety of causative fungus in a case seen in New Orleans.



Fig. 9 (Case 5). Patient with leg ulcers of Acladiosis.

Case 5—Acladiosis.

This is an uncommon ulcerative condition due to *Acladium castellani* Pinoy, 1916. It produces sharply defined, oval ulcers with very red granulating base. There is usually abundant secretion and sometimes superficial glandular involvement. The treatment consists of potassium iodide in full doses combined with mild local applications of mercury perchloride.



Fig. 8 (Case 5). Appearance of a three day old culture of *Acladium catellani* Pinoy, the organism of Acladiosis.

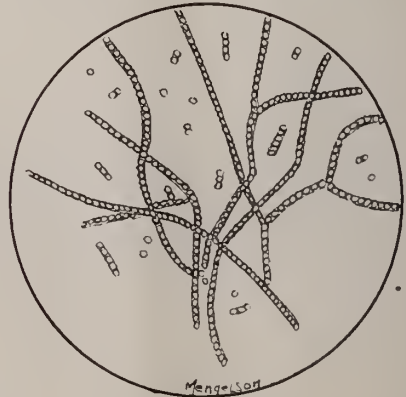


Fig. 10 (Case 6). The appearance of the fungus, *Monilia Persoon*, found in the case of pulmonary mycosis shown in Fig. 11.



Fig. 11 (Case 6). Patient with pulmonary Moniliasis.

Case 6—Pulmonary Mycosis.

This condition is caused by fungi of the genus *Monilia* Persoon, 1797. Castellani first described it in 1905 and since then many cases have been reported. The case here cited is that of a colored female who came to the clinic in New Orleans complaining of a chronic cough, loss of weight, night sweats and fever. This condition simulates pulmonary tuberculosis in every detail and a clinical diagnosis can not be made. The sputum should be collected in sterile containers and examined at once and also cultured. The fungus is Gram-positive and presents a spore-like, roundish, often double, contour. The mild cases respond to iodides internally. The chronic cases are difficult to treat.

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RAGWEED HAY-FEVER IN THE SALT RIVER VALLEY

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The purpose of this note is to call attention to a recent development in the hay-fever situation of central Arizona.

The short ragweed, *Ambrosia elatior*, which in many states is the chief cause of autumnal hay-fever, does not occur in Arizona. We have, however, a group of plants botanically related to it. In the hill and mountain country a congener, the western ragweed (*Ambrosia psilostachya*) occurs unevenly and is a local cause of pollen disease. More abundant than this and much more important as contributors of air-borne pollen are the *Franserias*. Two of these,

the false ragweed (*F. acanthicarpa*) and the slender false ragweed (*F. tenuifolia*) resemble the common ragweed of the east and are locally known as bur ragweed, or simply as ragweed. The first thrives best in the hill country; the second ranges lower and is present, but not hitherto abundant, in the Salt River Valley.

In the desert which borders this valley there flourishes another *Franseria*, *F. deltoidea*. Its common name is supposed to be rabbit bush, but as a matter of fact, it is commonly and incorrectly called sage brush. It is a low sprawling bush with gray-green triangular leaves that have a sage-y smell. This bush varies widely in its pollen output, both as to time and as to quantity, from year to year. It takes advantage of the spring rain, if there is any, to bloom quite inconspicuously at any time from the middle of March to the first of May. It is often found in company with the brittle-bush (*Encelia*) which displays its gaudy yellow flowers at about the same time.

Therefore the laity and not a few physicians are convinced that the spring hay-fever caused by the rabbit bush comes from the "yellow flowers." In like manner do the flowering compositae which bloom in late summer receive the blame for the mischief done by the false ragweeds.

There seems to be a close biochemical relation between the two false ragweeds and the true ragweed which occurs in the eastern states. Persons who are primarily sensitized to the eastern ragweed always react more or less to the false ragweeds, the western ragweed and the rabbit bush, the strength of their reactions being usually in the order named. I have observed that newcomers from the east, previously sensitized to eastern ragweeds only, may have hay-fever during their first season of exposure to the western and false ragweeds; at best, their free interval seldom exceeds three years if they are adequately exposed to false ragweed pollens. Such adequate exposure in previous years has been met with only in the hill country, not in the Phoenix district. Those who had hay-fever from the eastern grasses, on the other hand, are nearly always free from symptoms during their first year in Phoenix and may enjoy a latent period of three or even five years before they develop an allergic response to Bermuda grass.

The season of 1927 was the first in several years to favor the growth and pollination of the *Franserias* in the country about Phoenix. Early in March the desert was well soaked. The characteristic pollen granules of the rabbit bush were found on

slides as early as March 10, and from the 20th of March to the middle of April they were abundant, and induced hay-fever in those who had the appropriate sensitization. About one-fourth of the older Bermuda grass patients here have a minor sensitization to rabbit bush, and for the first time in years they clinically confirmed their skin tests. Their symptoms were rather easily controlled by small intradermal doses of rabbit bush pollen extract, without interrupting their treatment against Bermuda grass. The point I make here is that, if their symptoms from a minor and unusual sensitization had not been dealt with, these patients would have failed of a satisfactory result, no matter how thoroughly their Bermuda treatment might have been carried out.

An unexpected thing happened in the fall. Quite a number of these same patients who had gone comfortably through the height of the Bermuda season, began to be annoyed by hay-fever in late September. There was then, of course, no rabbit bush pollen in the air. A hasty survey of the local pollen bearers revealed the offender; it was the slender false ragweed, *Franseria tenuifolia*. This plant, always present in the Salt River Valley in scattered patches, has hitherto done no damage, so far as I know. But conditions are changing; because of the city's rapid growth, considerable land that was formerly under clean cultivation has been taken over by real estate developments and lies fallow. The false ragweed has moved onto the vacant lots. Last fall, stimulated by an early rain, it pollinated freely enough to affect those sensitized to the ragweed group. For the second time in one season, these patients were relieved by coseasonal treatment with the pollen of a *Franseria*.

From this time on, these valley ragweeds will bear watching. The plants are not winter-killed at the time of this writing, and they seeded last fall. If there happens to be rain enough to keep them alive, they will cause trouble next summer and fall. The same is true of the careless weed, which is likewise an opportunist in the matter of fallow acreage. While these weeds do not rank with Bermuda grass as pollen producers, they may ruin the result of careful treatment with Bermuda pollen by causing sharp attacks of hay-fever in late summer and in autumn. This need not happen, for, if the multiple sensitization which causes such attacks is recognized, a little appropriate treatment will bring the symptoms to an end.

In closing this brief commentary on the local hay-fever situation as it now presents itself, I venture to make a prediction. For years I have watched the Bermuda grass creeping up along the watercourses to higher and cooler climatic zones, until now it is well established at an altitude of 5000 feet or higher. The Russian thistle, traveling after the manner of tumbleweeds along the roads and rights of way, has been adapting itself to lower and hotter zones until now there are small patches of it scattered all over the valley. Growing population, greater acreage in use, more irrigation, more travel, more shipments of weed-fouled fodder—these are the factors that are combining to erase our natural botanical boundaries. So it is probable that within a few years we shall have to deal with a more complex hay-fever situation in Arizona and we need to be alert to deal with changes as they appear. That is only one more reason why every doctor who treats pollen disease should educate himself to know the plants that cause it: what they are, where they grow and when they pollinate. The time and effort so spent will be well repaid by his satisfaction in treating more successfully an ailment which seems destined to become a menace to the public comfort, if not, indeed, to the public health.

NON-SPECIFIC CHRONIC ULCERATIVE COLITIS.

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Read before the El Paso County Medical Society.
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This is a disease process involving the mucous membrane and deeper layers of the large gut. The mucous membrane is hyperemic, edematous, bleeds easily in the early stages, and later there is breaking down of the mucosa and ulcer formation. Mucus, pus, and blood are uniformly present in the stools, which are increased in frequency. The patient suffers from anemia, debility, and prostration in direct ratio to the intensity and duration of the disease process. Fever may or may not be present. The bacteriology of the non-specific form of ulcerative colitis shows absence of Shiga's, Flexner's, Strong's and "Y" bacilli of dysentery, and also of pathogenic amebae.

H. Strauss' claims that cases of non-specific ulcerative colitis should be classed as dysentery. Ehrman, Herbert, and Hopkin take the same view and have obtained, in many cases, an agglutination with dysentery bacilli. They claim that, from a diagnostic standpoint, the agglutination phenomenon is of more value than the finding of

specific bacteria of dysentery. This conclusion is not convincing because many related bacteria can show para-agglutination. An example is the oft recurring agglutination of the serum of patients suffering from ulcerative colitis with a suspension of paratyphoid bacilli.

The most convincing work in establishing a specific infection in the etiology of the disease under discussion has been done by Bergen² of the Mayo clinic. He also isolated a non-capsulated diplococcus about the size of a pneumococcus and claims that it is the pathogenic organism. By inoculating animals with this diplococcus Bergen was successful in producing in the colons of some of them petechial hemorrhages with diarrhea.

Other disease-producing organisms said to cause ulcerative colitis—*staphylococci*, *pyocyanus*, *Proteus vulgaris*, *Bacillus fecalis alcaligenes* and intestinal streptococci—are all found occasionally in the stools.

In the end it is not remarkable that so good an authority as Albu looks upon so-called non-specific ulcerative colitis as being a disease of unknown origin. One must either take this view or else lay the blame on bacteria which are always present in the colon as saprophytes—namely, colon bacilli. It is well known that saprophytes which grow in different regions of the body all too often become pathogenic to the host. Changes take place, the microorganisms take on new characteristics. Similar mutations occur in reverse procedure when bacteria classed as pathogenic become harmless saprophytes: for example, when immunity is acquired to an epidemic of contagious disease. There is much to be said in favor of the conclusion that the disease under discussion is caused by pathogenic colon bacilli. We have in many cases a severe inflammation and ulceration of the bowel and the presence of nothing more than the usual intestinal flora. Bacteria classed as harmless saprophytes may cause disease. For example, the *Micrococcus catarrhalis* is a common saprophyte of the respiratory mucous membrane and sometimes causes pneumonia, cerebrospinal meningitis and, rarely, endocarditis and sepsis.

The saprophytes of the normal intestinal canal obtain their nourishment from the waste products of digestion and the dead, cast-off epithelial cells, leaving the normal mucous membrane untouched. It has been claimed that individual resistance is of greater importance than the quality of the invading bacteria. This statement may be modified in the sense that the quality of

the bacteria is functionally dependent upon the protective quality of the invaded cells. In other words, reduced immunity, general or local, can give rise to pathogenicity in bacteria. Deficient protective immunity of the intestinal wall can make possible the invasion of the cells of the mucous membrane by an organism usually harmless. In general, tissue of reduced vitality will be invaded by the ever-present bacteria, just as dead cells and dead tissue are invaded—with this difference, that the bacteria themselves may undergo a rapid change in their racial characteristics.

According to Aschoff, deficient local protection against bacteria, as well as against tumor cells, can have its origin in hereditary deficiency of the reticuloepithelial apparatus.

The world war period, with its many epidemics of dysentery, drew attention to the frequency of ulcerative colitis following acute dysentery of specific origin. It is admitted that such cases, after several months, may lose the original infecting bacterium or ameba and the stool examinations and cultures show that colon bacilli have become the sole, or predominating, organisms.

As a rule, intensive treatment of amebic dysentery over a sufficient period of time causes the disappearance of the parasite, and this is co-incident with a return to normal. Many cases, however, are not well when the parasites disappear from the stools. There has been a secondary infection of the intestinal mucosa and, on culture, the colon bacillus usually dominates the flora.

DIAGNOSIS

The onset is apt to be acute and the patient attributes his trouble, many times, to a cold. Patient Mrs. R. developed her first symptoms during her puerperium. Usually there have been recurrent attacks of bowel trouble. The stools are increased in frequency and there is more or less straining at stool. Stools contain more or less mucus, pus, and blood. In several of my cases the stools were literally a puree of pus cells.

The absence of specific dysentery bacilli in culture is significant, as is also the negative history of tuberculosis.

First place in diagnosis must be given to the use of sigmoidoscope. In the beginning, there is hyperemia of the rectal mucosa. Later, there is edema and thickening of the mucous membrane, which now bleeds readily. Still later, there develop miliary abscesses in the mucosa. These rupture and leave numerous yellow spots on the mucous membrane which bleed on swabbing. In

healing, these minute ulcers leave rocklike scars which Buie calls "the footprints of previous activity."

It has not been my good fortune to see any cases of non-specific ulcerative colitis in the earliest stages, but always later, when the swollen and infiltrated mucous membrane was bathed in secretion containing mucus, pus, and blood. The absence of large and deep or coalescing ulcers, such as are found in amebic colitis, and discrete punched-out ulcers with healthy areas of mucous membrane between, as occur in tubercular ulceration of the bowel, is significant.

X-ray examination shows loss of the haustral markings, often limited to the descending sigmoid and part of the transverse colon. The margins of the diseased colon may be of a "fuzzy" appearance. The affected part of the colon appears spastic and rigid.



Radiograph of colon with ulcerative colitis.

TREATMENT

Spontaneous cures may occur in a few of the mildest cases. Yeomans³ reported as cured or markedly improved, thirty-two of fifty-four cases (63.4 per cent). A disease causing such a high percentage of death or chronic invalidism is deserving of careful study.

Almost every known drug has been used by mouth, intravenously, or per rectum. Only a few of the most promising can be mentioned.

Bismuth sub-ni'trate, kaolin, and tannigen fill a place as astringents and bacterial-growth-inhibiting agents, but are not curative.

Iodin, in 10 drop doses three times a day,

was used by Logan⁴ with good results in several cases. I have used it in three cases but did not note more than temporary improvement.

Mercurochrome. Bassler⁵ and others have had good results with the use of this drug intravenously. I have used it in two cases. In one of them, there was a sharp reaction with no improvement and the drug was not repeated. In the second case, a slight subjective improvement and decrease in the number of stools was noted, and, following the third injection, a higher fever and increased number of stools—so the mercurochrome was discontinued.

Colon Lavage. This is often of much help in making the patient more comfortable, lessening the number of stools, and, if properly and cautiously given, is of cuartive value. In my experience, a double return flow irrigator with a large outlet and reaching only to the rectal ampulla, is most useful. A dairy, or bath, thermometer should be used to regulate the temperature of the water, which should be about 120 degrees when it reaches the patient. In my hands, normal salt solution, at least three quarts, followed by a quart of ichthyol solution (a teaspoonful to the quart of normal saline) twice a day, has given the best results.

Vaccine. Quoting Buie⁶ of the Mayo Clinic: "From Feb. 1, 1924, to March 1, 1926, 132 patients with ulcerative colitis have been treated in the Mayo Clinic, using the Barga vaccine and filtrate. Fifty-eight of these are clinically well and twelve have been under treatment less than a month. In seventeen cases, the stools have become normal but ulceration of the rectum and sigmoid have persisted as revealed by the sigmoidoscope. However, the specific chronic ulcerative colitis was cured in most of these cases and the remaining ulceration was of the secondary infective type which requires local treatment. Nine patients were classified, from their statements and general observations, as 50 per cent improved. Eighteen have not been heard from, and it is reasonable to suppose that they are clinically well."

Grossfeld and others have used, with very good success, an autogenous vaccine prepared from the stool of the patient, containing colon bacilli and such accidentals as may occur.

Vaccine therapy has for its object the raising of the resistance of organs with lowered resistance, by the use of specific enterovaccines made from the bacterial flora of the patient. In regulating the strength of the doses, the ideal is so to adjust the number of dead bacteria given that the in-

fecting bacteria are more or less paralyzed and the resistance of the patient increased. Grossfeld states that too small doses may have the opposite effect. In cases free from fever, the dose must be high, but the results here of vaccine therapy are especially good. He begins with a vaccine of 100,000,000 dead bacteria per c.c. with .5 per cent carbolic acid added, giving one c.c., then two and three, subcutaneously, at intervals which depend upon the disappearance of the general reaction following the doses given, usually, from three to six days apart. He then goes to a stronger vaccine, with 1,000,000,000 bacteria per c.c., and gives doses similar to the above. When, in the course of the treatment, the reactions are absent or slight, and the results with reference to the control of the symptoms not good, he considers it of great importance to give intramuscular milk injections. This is done to produce a sensitization, after which the vaccines produce a more marked effect. The milk injection can be repeated from time to time. In the most typical cases, the treatment may be continued for two months without exhausting the immunizing possibility of the vaccine. In other cases the vaccine may be repeated after an interval.

Cecosotomy, appendicostomy and ileostomy, are all done in stubborn cases and sometimes with marked relief. The choice of operation depends rather upon what is to be accomplished. For irrigation, cecostomy or appendicostomy may be done. For drainage and relief of the colon of irritating intestinal contents, the ileostomy is best. It should be borne in mind that the contents of the cecum in these cases has as much enzyme activity as the duodenal contents. For this reason there may be serious necrosis and sloughing of the operation wound in some cases.

Diet. A diet which produces putrefaction is preferred to one which produces fermentation. There always exists a great amount of putrefaction which comes from the bacterial products of inflammation. A vegetable diet is contra-indicated on account of the irritating substances which many vegetables contain. Vegetable remnants are irritating to the diseased intestine.

The stool of a patient on a meat diet is one-third as great as when the patient is on a mixed diet. The antiscorbutic qualities of orange juice and tomato juice and green vegetable soups should be made use of. Meat can be taken in the form of rare scraped beef patties, beef juice made from broiled steak. Sometimes well prepared fish agrees. In many cases milk is not well borne. Eggs may be used in the diet, espe-

cially in made dishes and custards, omelettes, etc. Well browned toast of white bread and well cooked fine cereal may be used.

During the past four years I have seen seven cases of non-specific ulcerative colitis. Cases 5 and 6 lived out of town and were treated only a few days, returning home unimproved. It would not be fair to include them in this analysis.

Case 1. Mr. B. Made no improvement until after an appendicostomy by Dr. John A. Hardy. Slow gains were then made and he continued his treatment after returning home. In spite of poverty and poor surroundings he made a good, but very slow, recovery. No vaccine was used. He has been well for two years.

Case 2. Mrs. J. Secondary to amebic infection; had, besides the routine medical treatment, colon lavage and direct local treatment and the Bagen autogenous vaccine. She made good recovery.

Case 3. Mrs. F. and Case 4. Mrs. R. had autogenous vaccine with colon bacilli predominating. Both recovered.

All three of these cases made improvement prior to the use of the vaccine, but improvement was more rapid after its use. All of the above cases were of very severe grade. Case 1 was of three years standing; Case 2, one and one-half years; Case 3, three months; Case 4, six months, this patient had been treated in a Chicago hospital by a very competent man and had been told that she had a tubercular colitis.

Case 7. Mrs. M. was under my treatment for three months. She was a very severe case with twenty to thirty stools a day of almost pure pus. She was emaciated, weak and very anemic. Appendicostomy, autogenous vaccine, foreign protein, mercurochrome blood transfusions, and good routine helped, if at all, only temporarily, and she died from inanition and septicemia.

In cases 3, 4, and 7 the Bagen's diplococcus was not isolated.

Of the five cases treated, four recovered—one died.

CONCLUSIONS

Non-specific ulcerative colitis may be caused by pathogenic colon bacilli. Further study with Bagen's technic needs to be done before we can accept his diplococcus as being the specific cause.

Great patience and much judgment must be used in applying routine treatment in order that cell resistance not be lowered.

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DELIRUM CORDIS—Auricular Fibrillation

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Read before the Pecos Valley Medical Society Dec. 12, 1927, and before the El Paso County Medical Society Jan. 28, 1928.

1. Thirty-two years ago, I saw a man of 70 years in a heart attack. He had become suddenly prostrated and was in great distress. The heart was very rapid and tumultuous, the sounds were now feeble, now slow, with now an alarmingly long pause, now pounding and loud, a jumble of sound and agitation—a true delirium cordis. I stayed all night and plied him with strychnine, nitroglycerine, morphine and atropine, ammonia, enemas, and many other potent remedies. Next morning he was better. Indeed, his pulse was quite regular and normal. Twenty years later I discovered that my case had been one of paroxysmal auricular fibrillation—a rather harmless but disturbing affection—and that old man Smith would in all probability have recovered had I gone to bed early and got up late on that eventful night.

About 50 per cent of all cases of auricular fibrillation are paroxysmal and transient. A knowledge of the natural history of the disease would have saved much good medicine and wasted activity. When one is short on diagnosis he is apt to be long on treatment.

2. J. B., a merchant, aged 58 years, had paroxysmal tachycardia for a long time. Finally, in the summer of 1914, his heart began to fibrillate and has continued to do so for almost fourteen years. His pulse is generally from 70 to 80 per minute, while the heart is 90 or more and absolutely irregular. The heart is considerably hypertrophied and dilated. The valves are normal. The electro-cardiogram shows slight spreading of Q. R. S. T is upward in all leads. He spends his vacations at an elevation of 9000 feet and experiences only slight dizziness and shortness of breath which passes off after a few days. He takes no medicine.

Not many cases of permanent fibrillation live fourteen years. MacKenzie had a case that lived sixteen years. A very few have lived twenty years or more. Most cases of fibrillation have a badly damaged heart is sound otherwise, auricular fibrilla-

tion need not shorten life very much. Diseased auricles are not so serious if the ventricles are sound. The auricles play very little part in moving the blood onward. Their main function is as bags to hold the blood before it goes to the ventricles. There are two factors that have enabled J. B. to live in comparative comfort for fourteen years with his fibrillation: First, a relatively healthy ventricular muscle; and second, the slow rate of his heart. Most cases need digitalis to control the rapid and tumultuous heart action. The next case illustrates this fact.

3. E. D., banker, aged 53 years, was rejected for life insurance, when 20 years of age, on account of heart disease. However, he enjoyed fair health until two years ago. At that time he had a loud systolic murmur at the apex and a mid-diastolic rumble. The heart was hypertrophied and dilated, absolutely irregular, and 150 per minute, the pulse 80. The liver was easily palpable and the feet edematous. He had marked dyspnea and had to quit work.

He was put at rest and given powdered digitalis, 45 grains daily. His condition improved quite rapidly. The heart became much more regular and by constant use of digitalis he was enabled to resume his work. At the end of three months his heart rate was 78, pulse 70, edema and swelling of the liver gone, no dyspnea even on considerable exertion. He now wanted to quit taking medicine. He believed he could control his heart by Christian Science. After much effort to convince him to the contrary, I finally consented, knowing that experience is the best teacher. He went to the mountains and stopped his digitalis. He had great success for two weeks; then his faith was disturbed. Returning dyspnea, palpitation and edema got beyond his control. There was an error somewhere. Since then he has taken digitalis and faith together. The combination has worked admirably.

This case is quite different from that of J. B. Mitral stenosis means rheumatism. Rheumatism not only affects the endocardium; it damages the heart muscles. Aschoff bodies fill the heart muscle, especially the subendocardial layers. E. D. had his rheumatic heart for over twenty years before fibrillation set in. His heart rate was rapid. Many beats were feeble and inefficient. Out of 150 beats per minute, 70 were wasted because they were too weak to open the aortic valves. Digitalis corrected this, reduced the heart rate to 78, and the pulse to 70—a pulse deficit of only eight. Not only that, but the beats became more efficient because there was more time for

rest. Such a heart needs digitalis constantly. It saves life, it prolongs life. It puts the cripple back to his work.

4. C. L., dental laboratory man, aged 35 years, had chorea at 8 years. At 14 years, after violent exercise, his heart suddenly became very rapid and irregular. The spell soon stopped as suddenly as it came. During the next fifteen or twenty years he had three or four similar attacks, generally brought on by violent exertion, such as wrestling. Strangely, once he stopped an attack by running very fast, he says.

His aortic arch is four centimeters wide. The right border of the heart is four centimeters from the midline, the left eleven centimeters from the midline. There is a loud systolic murmur at the apex and a mid-diastolic rumble. No cyanosis, no edema.

I first saw this patient December 12, 1925. At that time his heart had been fibrillating for three months. It resumed the normal sinus rhythm after taking 56 grains of quinidine sulphate in the course of sixty hours. The drug was continued in 3 grain doses twice daily, and he had no more fibrillation until July 4, 1927. At that time he went trout fishing in the mountains. He had walked two miles up stream and reached an elevation of 8000 feet, when he got very weak and the "color of liver," and the heart action became rapid and irregular. I saw him on the sixth. He was put on digitalis until the circulation improved, and then on quinidine as before. It caused some nausea, weakness and dizziness, but on July 26th the heart resumed its normal rhythm, and he felt much better. During the latter part of August, while driving a car, something went wrong. he got angry and his heart "went off the track again." Since then we have been unable to get it back to the normal rhythm. Proper digitalization has enabled him to resume his work.

I have seen several cases of fibrillation brought on by altitude. Overeating, overexertion and excitement also often precipitate attacks.

This case illustrates very well the tendency of paroxysmal fibrillation to become permanent, although it may take many years. It also shows that success with quinidine in restoring normal rhythm depends upon the condition of the heart muscle. When heart failure has reached a certain point quinidine is useless, or, if sinus rhythm is restored, it will be of short duration. Digitalis is the most efficient remedy in most cases.

What is the prognosis in this case? I

believe that, with proper care and the continuous use of digitalis, he may live many years. I have cases much older, who were disabled and dropsical, restored to usefulness for from three to five years.

Mitral stenosis is associated with the majority of cases of fibrillation. The next most common associates are coronary sclerosis, "myocarditis," with hyperthyroidism probably next. In every case of fibrillation one should examine the thyroid. Among 207 heart cases seen at the city-county clinic, there were seventeen cases of auricular fibrillation, nearly all with mitral stenosis. Among fifteen cases of hyperthyroidism there were five with permanent fibrillation.

5. J. W., real estate man, aged 53 years, was first seen December 31, 1925. He complained of sore mouth, weakness, emaciation and nervousness. The bowels were constipated and the appetite very poor. He had lost sixty-nine pounds in the last three months. He said that on four or five occasions during the previous ten years he had similar symptoms, but soon recovered. He thinks this attack was brought on by worry.

His tongue was coated and painful; considerable pyorrhea. He looked pale and weak. The hands showed marked tremor and he was very restless. The pulse was absolutely irregular and about 100, while the heart action was tumultuous and 150 per minute. The heart examination was negative except for slight hypertrophy of the left ventricle. The blood pressure was 90-72. Urine was normal; Wassermann negative. His condition suggested pellagra.

This patient was put on digitalis and quinidine. He grew steadily worse. In April, 1926, it was noticed that he had a small goitre. The eyes were prominent and he had Von Graefe's sign. He was put on Lugol's solution of iodine and improved at once. He gained rapidly in strength, appetite returned, the sore mouth disappeared, the blood pressure rose to 128-82, and his weight increased fourteen pounds. June 28, 1928, he had very little tremor, the pulse was 96, and he was at work. At first he had occasional fibrillation, but for several months it has been permanent. However, since he has been on iodine, digitalis controls has pulse rate much better than before.

I advised x-ray treatment for the goitre, but it was never given. It is said that after operation fibrillation is more easily controlled by quinidine. We have had our cases at the clinic on Lugol's solution, ten to twenty drops three times a day, nearly two

years. All have been greatly benefited but in no case has normal rhythm been restored. We have not tried large doses of quinidine in this type of cases at the clinic. All have been ambulatory and at work.

Auricular fibrillation constitutes a large part of heart practice. Lewis says that 60 per cent of all heart cases coming to hospitals are fibrillating. Its treatment is most satisfactory. Often these patients are rescued from death's door and restored to usefulness for many years.

However, sudden death is a not uncommon termination. This should be well understood so that our remedies may not be blamed for the result.

6. L. B., school teacher, aged 48 years, had inflammatory rheumatism at 14 years and several recurrences since then. December 7, 1924, while at the telephone, her legs suddenly gave way and she fell to the floor. Both legs were very painful. She was seen by a physician who thought she was hysterical and wanted morphine, as she had formerly been an addict. Later she called another physician. At this time the left foot was cold and the sole of the foot black. The right leg had somewhat recovered. Gangrene was evident in the left. I saw her December 12. The heart action was tumultuous and absolutely irregular, 150 and more per minute. There was a systolic murmur at the apex, and a loud, rumbling diastolic murmur. The heart was hypertrophied and dilated. Temperature, 99 to 102 F. The gangrene of the leg spread to the knee. She was rapidly digitalized and the pulse slowed to 80. Blood pressure 120-80.

On December 21, a thigh amputation was done under spinal anesthesia and morphine, by Drs. Crouse and Pickett. She slept during the operation and no changes were noticed in the circulation. At the end of two weeks she was in very good condition and apparently making a good recovery. While talking to her brother, she felt queer and said: "I feel as though something terrible is going to happen." Immediately the other leg became paralyzed and painful, and finally gangrenous. The pulse rose to 160, but was again brought to 90 by very large doses of digitalis. She died on January 14, 1925. The antemortem diagnosis was auricular fibrillation, mitral stenosis, ulcerative endocarditis, hypostatic pneumonia, embolism of both femoral arteries.

Postmortem by Dr. W. W. Waite: "The heart is considerably enlarged, and all chambers filled with organized blood clot. These clots extend into the pulmonary arteries and the aorta. At the bifurcation of the aorta was a riding thrombus appar-

ently unattached. Both common iliacs are almost obliterated by thrombi, and the femoral veins are also thrombosed. The kidneys contain numerous depressions which may be due to infarcts."

Thrombosis is quite common in auricular fibrillation. Thrombi are particularly apt to form in the left auricular appendix, owing to the inefficient contraction of the auricles. These, of course, may break loose at any time. When normal rhythm is restored by quinidine or otherwise, they are apt to be forced out and embolism results. In the case reported the heart was probably fibrillating when embolism occurred. I have seen a very similar accident in a woman of 56 with auricular fibrillation due to goitre. A woman of 51 years, under my care at present for auricular fibrillation and mitral stenosis, has just suffered an attack of hemiplegia, in all probability due to embolism.

The second point of interest is that Mrs. L. B. withstood amputation without incident. Apparently the ventricular muscle was in good condition. I do not believe that auricular fibrillation contraindicates operation, unless there are marked signs of heart failure, such as cyanosis, edema, swollen liver, and dyspnea. The mere presence of an irregular pulse may be of little significance.

Third, riding thrombus is very unusual. Only a very few cases have been reported in the literature.

I have seen several other sudden deaths during auricular fibrillation, apparently due to heart block. In one case the heart had been slowed to 40 with digitalis, and this may have influenced the fatal result.

SUMMARY

Auricular fibrillation is a very common cardiac ailment. It may be paroxysmal or permanent. The diagnosis is generally very readily made. Most cases occur in rheumatic heart, especially mitral stenosis. It is a common occurrence in coronary sclerosis, chronic myocarditis, and very often in hyperthyroidism. The danger of sudden death from embolism or heart block is always to be kept in mind. The proper use of digitalis and quinidine often produces brilliant results, and prolongs life and efficiency for many years. Cases have been presented illustrating these points.

DISCUSSION

MAJOR HAIG, M.C., U.S.A.: I think Dr. Werley's paper is an excellent one. All I can do is to compliment him on presenting the subject in such a very clear, interesting way. I remember one case we had at Beaumont Hospital, which was seen by Major Scott, where the pulse rate was as slow as 60. That threw us off. When the electro-cardiogram was taken, it showed no pre-

mature fibrillation. The man, apparently in good health had had rheumatic fever which evidently damaged his conductive system.

Just this last month we were called to examine some officers sent up for physical examination. In one case the heart was irregular, so a tracing was taken which showed it to be auricular fibrillation. I took another tracing on the following day, when there was no fibrillation and could not find anything abnormal that would give a line on the cause of the intermittent attacks.

There are just these two points which I should like to stress:

1. That paroxysms may come and may go; may last for a few minutes, or last for days, months, or years; may be associated with marked symptoms, or may not be associated with any definite symptoms.

2. That paroxysmal fibrillation, and fibrillation which is not paroxysmal but is permanent, do occur in hearts that are badly damaged. Symptoms come through the cardiac failure and hearts that are badly damaged give signs of cardiac failure and will also show symptoms with or without fibrillation.

In an article in the British Medical Journal, the point was brought out that auricular fibrillation was a disability which was compensable, in connection with the employee's liability compensation. One of the cases reported was that of a man who had received a shock with electricity, approximately 250 volts, which so affected his heart as to cause fibrillation. Other cases cited were of men subjected to undue violence in connection with their occupations. Claims for compensation have been built up on the basis of auricular fibrillation, traumatic in origin, due to violence in connection with certain work.

I enjoyed Dr. Werley's paper very much.

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A DISCUSSION OF CATARACT

W. E. VANDEVERE, M. D.
El Paso, Texas

Read before the El Paso County Medical Society, November, 1927.

A paper of this sort must necessarily be too short to cover the subject in detail, but I shall attempt to present some of the more salient features.

HISTORY

Cataract has been defined as any opacity of the lens or its capsule. This condition was well known to the ancient Greek and Roman physicians, who operated by displacing the opaque lens into the vitreous by means of a needle. The nature of the disease was not understood, however, as they believed the opacity to be in front of the lens, and that it was a pouring down of an opaque substance between the iris and the lens; hence, the name cataract. The lens was thought to be the seat of vision and the perceptive organ, instead of the retina as we know today.

The true nature of cataract was not accepted until the early part of the eighteenth century. In 1705, Brisseau of France depressed a cataract in a cadaver and, when he opened the eye, found that the opacity was in the lens itself. His observations ob-

tained no credence before the French Academy and it was three years later before his work was generally accepted.

ANATOMY AND PHYSIOLOGY

In its normal condition the lens is a transparent biconvex body measuring nine to ten millimeters in diameter and four millimeters in thickness. It is enclosed in its capsule and attached at its circumference to the ciliary muscle through the suspensory ligament. The lens lies just posterior to the iris and rests in a depression in the vitreous—the fossa hyaloidea. The lens exerts considerable influence on rays of light, converging them so as to make them come to a focus on the retina.

TYPES OF CATARACT

For practical purposes cataracts may be divided into four classes:

1. The congenital cataract, frequently occurring from no known cause, usually affecting both eyes; partial and stationary, as a rule. The zonular cataract, in which there is seen a central clear area surrounded by an opaque zone, is a typical congenital cataract and is thought to be due to a deficiency of the parathyroid glands. Cataract may develop from injury at time of birth. A posterior polar cataract is often due to remains of the hyaloid canal.

2. Traumatic cataract develops from an injury which may or may not perforate the eye. Any injury that ruptures the capsule of the lens and allows the lens fibres to come in contact with the aqueous, is likely to produce a cataract in a very short time. Many injuries, such as a blow in the eye with a blunt object, cause cataract to develop through the rupture or disturbance of the lymph circulation to the lens. Such a cataract may take two or more years to reach maturity. Cataracts resulting from electrical shock usually require months or years to develop.

3. Cataracts secondary to other diseases are common and present the most difficult type to manage. Of systemic causative factors, diabetes ranks highest with nephritis and gout an occasional factor. Diseases of the eye itself most often followed by cataract are: iridocyclitis, choroiditis, corneal ulcers, glaucoma and detachment of the retina.

4. The senile is the most common form of cataract and generally appears after the fiftieth year. Both eyes are involved, as a rule, and the opacity appears as striae radiating from the periphery towards the center (cortical cataract) or as an opacity in the center (nuclear cataract). The cortical cataract is grey in appearance while the nuclear variety appears brown or black.

There are several stages in the progress of senile cataract. (a) The incipient stage in which there are a few opacities in the lens, which, if located in the center, may greatly disturb the vision. This stage may last over a period of many years. It is best to tell the patient that his eyes should be watched, as he has some opacities in the lens, rather than say that he has incipient cataract, because the mere mention of cataract is enough to throw some patients into a nervous fit and cause the rest of their lives to be spent in misery waiting for blindness. (b) Next comes the stage of swelling, in which the lens absorbs water. The anterior chamber becomes shallow and the iris shadow is seen penetrating the depth of the lens. The eye becomes more myopic in this stage because of the thickened lens and often the patient is able to lay aside his reading glasses and is said to have regained his "second sight." Credit for such a feat may be given to the chiropractor, Christian Science, catnip tea, or simply a rabbit's left hind foot and everyone is happy, for, although the patient has regained his "second sight," neither he nor his friends realize that his vision is much less acute because of the opacities in the lens. (c) If the cataract is allowed to remain, it reaches the hypermature stage, in which the lens becomes a homogeneous milky mass, the suspensory ligament becomes stretched; and it is here again that so-called miracles happen. Any severe jar, such as a fall or jump, might be sufficient to break loose the attachment of the lens to the suspensory ligament, the cataract falling back into the vitreous and a clear pupil resulting with vision. Such a procedure is not to be recommended, however, as glaucoma or other intraocular disturbances invariably occur, resulting in loss of the eye and endangering the other through sympathetic ophthalmia.

TREATMENT

If the cataract is seen in its incipency, it is very probable that the maturing process can be delayed. Locally dionin and other irritants, as subconjunctival injections of mercury, are recommended. X-ray, radium, electricity and lens antigen have had enthusiastic supporters. But the chances are that the greatest dependence to be placed in therapeutic lines, rests in avoidance of eye strain by proper change of glasses when required, good illumination, limited periods of, and proper distance for, near work, preservation of good general health and nutrition; and by careful treatment of any ocular disease, especially inflammations of the uveal tract. When vision has been reduced to .4 in the better eye, or when the vision

has been reduced to such an extent that the patient can no longer carry on his occupation, the cataract should be extracted unless there exists some definite contraindication.

OPERATIVE PROCEDURES

In the polar cataracts of children, there are times when an optical iridectomy is the procedure of choice. In others, artificial ripening by stroking the lens direct or through the cornea, is resorted to. However, most cataracts in patients under fifteen years of age are best treated by dissection or needling of the lens. The pupil is dilated and general anesthesia is used in the very young, and local in older children. The needle knife is passed through the periphery of the cornea and one or two cuts are made in the capsule of the lens. The process is repeated two or three times, at intervals of several weeks, until the lens matter has been absorbed.

Cataract extraction is most often done in senile cataracts. A careful examination is made to determine the presence or absence of intraocular disease. The pupils are dilated to see if there are adhesions between the iris and lens and to study the details of the cataract at the periphery. Light perception as well as projection—the ability to see a light from any direction when looking straight forward—must be good. This test tells us whether or not we are to expect satisfactory vision after operation. Age is no contraindication to operation, as several cases have been reported of successful operations in patients one hundred and one years of age. I had a very satisfactory result, a few months ago, with a patient one hundred years old. There must be no inflammatory condition in the conjunctivae or lacrimal sac. If a chronic dacryocystitis exists, the lacrimal sac must be removed before operation. The teeth, tonsils and sinuses must be carefully examined and properly cared for, as well as any other possible focus of infection. A urinalysis and Wassermann test are made and a smear and culture taken from the conjunctivae the day before operation. A 2 per cent solution of mercurochrome is dropped into the eye three times the day before and the morning of the operation. The patient is prepared as for any major operation. A hypodermic of $\frac{1}{4}$ grain morphin and $\frac{1}{150}$ grain atropin is given three-quarters of an hour before operation. When the patient reaches the operating table, the eye and face are washed with soap and water followed by irrigation of the eye with 1-6000 bichloride solution. A 4 per cent solution of cocaine is dropped in the eye three or four times at

intervals of five minutes. An injection of 2 per cent solution of novocain is made back of the eye ball as near the ciliary ganglion as possible. This insures perfect anesthesia. Novocain is also injected in the outer angle of the eyeids so as to relax the orbicularis muscle and thus prevent squeezing of the eye. A sharp knife is essential and a new one should be used for each operation. The knife is carried through the cornea near the periphery just above the horizontal meridian and emerges at a corresponding point on the opposite side. The section is completed by two or three to-and-fro movements, cutting upward in the same plane and anterior to the iris. A small iridectomy is done upward and outward, the lens capsule is ruptured and the cataractous lens is gently pressed out, great care being taken that no unnecessary pressure is made on the eye for fear of losing vitreous. If particles of lens material are left, this can be removed by irrigating with normal saline solution. The eye is gently closed and a light gauze dressing applied, over which an aluminum shield is placed. The patient is lifted to the cart and to his bed, not even allowing him to raise his head. He is kept flat on his back the first twenty-four hours, when the dressing is changed. If the anterior chamber has reformed and the condition of his eye is satisfactory otherwise, he is allowed to turn from side to side during the next twenty-four hours. After that he is allowed to get out of bed when necessary. The dressing is changed each day and the patient is generally able to leave the hospital about one week after operation. Six weeks after operation the eye may be tested for glasses. If the proper care is taken in the selection and preparation of the patients, 95 per cent of the operations should be successful and most patients should obtain vision that ranges from .7 to normal, when properly selected glasses are given them.

THE FUTURE OF MEDICINE

President's Address, Maricopa County Medical Society, February 6, 1928.

R. J. STROUD, M. D.
Tempe, Ariz.

In accordance with the announced subject for the evening, my paper will take up the economic phase of the future of medicine.

It is a truism that humans progress, and that, once a step forward is taken, the new relationship is kept, never to be lost by return.

Medicine is no exception to the rule. The profession as a body may hardly be aware

of the changes taking place and only when new social relationships are encountered do we pause for a short time to take stock of what we have failed to do to prevent inroads by laymen into our sphere.

With the World War, the putting away of the old black bag became a necessity, for a large part of the male population was directly brought into contact with the best in medicine, and learned good care with fewer drugs and more hospitalization. A good many learned how to live as do our arrested cases of tuberculosis who have had the benefit of sanitarium treatment. I do not decry the black bag stage; it was a necessary part of the armamentarium of the old doctor, and a part of him, in fact. But with the putting away of this symbol, we still have retained some of the old thoughts of the "doctor," which are now as far away from medicine as can be. Why we still retain the attitude, we do not know, but the public has changed with the world and it will never return to give the homage and reverence to the "old doctor" that was once part of us. We are clinging to some peculiar idealisms that should be ours, but we forget that the public mind is being cultivated away from the change. The old doctor was the most cherished man of his community. In dignity, service and high-mindedness, none were his equal. His lack of training was made up by his general knowledge of the families under his care. His wisdom and his retention of confidences were an axiom, and others patterned their lives after his. But with it all, his patients treated him as a machine, and as a poorly paid machine. He died, leaving a wonderful memory. Rich and poor followed his bier, but his widow was destitute or perhaps in debt. His office expense was small and he slept at any home where he happened to be. But, above all, he, and he alone, was the teacher of health. True, he had competition with advertised proprietary medicines, of which every grocery kept a supply, as well as opiates, but when they, his people, were sick, the old doctor would sooner or later visit the home, and pay a friendly visit besides, discussing health.

Today, we still cling to the older things and with some few we are held still in reverence, but with the great majority a doctor is just a doctor, or else he is a specialist. To have grown away from just a doctor to the specialist who is reputed to look after his pocketbook as well as his particular field, has become common. But the public is willing to pay the price if it gets service. The big thing is, that it does not distinguish between specialists. A patient

of mine had headaches, was nervous and had a peculiar twitching of the eyes. I went over him thoroughly and found that his eyes must be the cause. He told me he had been going to a specialist for three months without avail and that it must be something else. On his naming the specialist, I found he had been going to an optometrist. I referred him to an ophthalmologist and he was fitted with glasses. Today he is well and thankful. But he did not know the difference between so-called specialists; yet he is a very successful young business man. And still, it is reported that some of us in this society refer men away from regular medicine, to optometrists, osteopaths and chiropractors. In fact, one of the companies writing accident insurance told me of such references when the surgeon in charge could not help the patient further. Surely we cannot expect the public to distinguish between "doctors" and doctors, when we make no distinction. Is it only because of the criticism of our fellows that we do not refer our own families to irregulars, or because we think there are enough men in the regular practice to care for our wants? Are some patients, then, referred to irregulars for reciprocation? Or is the regular profession unwilling, because of its egotism, to refer a case to another member because the next man may have success with it or the case may get well in spite of the two of them and the last man get the credit? These questions have to be answered in the future if medicine shall live on its high plane, and they had better be answered now. So-called leagues for medical freedom abound all about us, aided and abetted by the irregulars to whom some of us wittingly send patients. Are we going to let petty jealousy within our ranks so undermine us that we prefer references to quacks who may reciprocate, rather than to regular men? I would not speak of this topic if I had not had concrete evidence from personal inquiry that such was the case.

Let me touch for a while on the "Free Clinic." Aside from the fact of anything else, the regulars still are the only ones who give the poor the advantage of a free clinic, build hospitals, and take care of the 10 per cent of desperate cases which do not get well in spite of any form of unscientific treatment. But here, again, we allow ourselves to be cheated out of moneys that belong to us because we do not care only for the poor at the clinics. In a recent A.M.A. Bulletin, one of the county societies reported a form which did away with much of the evil by accepting only those cases who

had a paper signed by the family physician stating that they were indigent and needed care. If a tonsillectomy is to be performed on a child, there is a paper signed by the parents, giving consent to the operation. This evil is not a big city one. It is right here. Through a misguided philanthropy, some individuals are actually perniciously active in finding for our own free clinics, cases of tonsils who can afford to pay the maximum fee for this work. I would like to see this society adopt measures to stop this activity. Not only that, but the specialist doing the work has the cases brought to him, diagnosed by a layman as tonsils needing enucleation, and he does it. Do you get the trend? Our specialists as mechanics for the pernicious layman. It amounts to that, does it not, for I have never had a case come to my notice that was turned down. This is putting the case bluntly, but in larger centers provision is made, at so-called free clinics, which presupposes those unable to pay, for more and more parking space and officers are designated to care for the cars of the poor to prevent quarrels over parking space. These cars are not given them, nor are their groceries, but the physician gladly advertises the fact that his work is worth very little. When these patients afterward go to a physician's private office, the idea is to get away from paying. And remember, more and more patients are treated at the free clinics every year, as somebody must show an increase in all American business. And this in a country where every fifth person, or almost every householder, has an automobile.

We turn now to Workmen's Compensation Laws and the relation of them to the profession. In our own case, fees inadequate for good service without padding, were offered and certain dictations were laid down to us by laymen, even as to what operations were to be done (and by whom, almost). Some of these were corrected and we are now satisfied with fees given, as there is no loss of accounts. But the dictation of medical fees by outsiders is still with us, and the independent companies writing this kind of insurance fall into line with the dictation. Some time or other, all of us have had, or will get into, a controversy with these companies concerning interpretation of fees. Nevertheless, we have retrenched from being an independent body. It is said that, in some states, padding and the handling of office dressings by nurses is common.

Industrial surgery has become a big factor in American life during the past ten or

fifteen years and is a special branch of the American Medical Association. This is, perhaps, the highest form of agreement of medical men with a corporate body, where good surroundings are given, equipment is of the best, and comparatively high wages are given to medical men. We are, in this state, very conscious of this fact and a goodly share of our medical men here have been trained in this work. When we relate this to railroads, mines, oil companies, water and power companies, factories and various other pursuits, it is indeed a factor in our medical life. If state medicine could be based on this style, we should be, probably, an adequately paid profession, as the ideals of the men governing these companies are of the highest.

Life insurance companies give fees for work done at their own price. Collections are 100 per cent. But it is only a short time ago that one of the largest writers of insurance, gave a \$3.00 fee for an examination which takes 45 minutes to do properly. In Canada, the doctors asked \$10 for these examinations, which was answered by the companies by not having any examination for policies under \$5,000, depending on good lookouts who report for \$1.00.

Parent-Teachers' associations ask physicians to work for nothing to examine children of pre-school age twice before they enter. They furnish nurses, when applied for, who are paid to gather the children and write the notes, and do the minor part of the work. Do not forget those nurses are paid by somebody. Failing this, children are weighed and inspected by nurses who recommend certain children to be taken to a physician or, sometimes, prescribe for the children, making diagnosis, etc. Some of these nurses have only just been graduated and have no training for public health work. For instance, I saw a child who was a few pounds underweight. It had been recommended that she take cod liver oil. Examination of her urine showed albumin. A chronic otitis media was also present. These nurses are conscientious, good women who are only earning their daily bread. But some functions of medical men are usurped.

Federal health officials, full time city officials, police surgeons, Indian service physicians and part-time town doctors run the number of men on a salary to a large percentage of our personnel, and the numbers are increasing each day. Therefore, when I say that we are getting away from the old time family adviser of health, we

are being forced into it by conditions which are controlling us. Some of these are inevitable, but some of the encroachments made upon medicine within ourselves, are avoidable. Certainly, in the matter of laws designed to protect the public from poorly trained medical men, we are amiss in that a small fighting minority take advantage of our lethargy.

Certainly we should let the people know, in no uncertain terms, that we should be distinguished from the cults: should let them know just what we have to offer in the line of prevention and treatment of disease. We should take up again the burden of being the teachers of the public, as the grand old men did before us, but we should use the means at our command, the newer media for the transmission. No longer should we cater to the old traditions, when the public has outgrown these traditions. Certainly, the trend of going to the cities is getting us out of sympathy with the populace, and the desire to begin the practice of a specialty with graduation is drawing us away from the bread and water stage of medicine which tries a man in the fire and molds his soul to the lowly and poor, who, as the Master said, are always with us. The early years of trial, with little recompense except good work well done and under difficulties, and without adequate trained help, make us more aware of our duty; otherwise we shall lose touch and sympathy with the masses without whose confidence no profession can live, nor even the politician.

The trend, as I see it, is towards state medicine in some form. There may come a time when, in our lethargy, we find that we are stripped of our substance by pressure of politicians or their advisors, the cults, when we would welcome state medicine but will not be able to get it, because it would probably be organized for regular medicine and would be prevented by the very cults that ask a so-called medical freedom. And, gentlemen, we do not want state medicine. Medicine will cease to be attractive if politicians control us and we are panel physicians, as are those of Germany and Britain. True, there will always be the rich who will demand extra service, and private physicians and specialty men will always be outside of the panel, but the rank and file, who have no special attainment, will be impoverished. The individual striving, the friendly rivalry, the initiative and the resourcefulness of the American physician, have made us the highly trained body we are today—the very best that has practiced the healing art since the

dawn of time. Let us keep the average always upward.

Gentlemen, the future of medicine is yours, and yours only. This unit of medicine, representing the most highly organized band of men in the world, can say what medicine shall be in the future, can name the rewards and dictate the terms, if they will. But you have to act to keep down the propaganda set against us; you will have to be fair one with another; you will have to cease dealing with the cults; you will have to let the message go out into the byways and highways that medicine is primarily for the people's good, that you have something worth while to offer—better health; that you, the medical men, build the hospitals, care for the poor and give of yourselves without stint to all classes.

Heretofore you have tried to deal with legislators after they have been elected to office. Take heed; you had better deal with them beforehand.

You can well stop the leeches of medicine who clog our free clinics; you can place us in such a position that if, in the future, state medicine comes into being as the only way to face the cults, you can use that position to make state medicine in America an outstanding effort, economically sound and worthy of highly trained men.

In closing, I want to say that I hold no prejudice in any statement made here, against any individual. If I have been blunt, it is because I know of no other way to "get over" that part of the message. Only once a year do we devote part of a meeting to economics, and this feeble effort to analyze our social relationships of the present with what may occur in the future is right from the heart in the interest of the thing nearest and dearest to me—medicine.

CARCINOMA OR DIVERTICULITIS?

(Case history discussion by the Yavapai County-Fort Whipple Post Graduate Study Group. Presented at their regular monthly meeting held on January 10, 1928, at Whipple, Ariz.)

John T. Malone, M.D., Group Leader, Whipple, Ariz.

C. C. Benedict, M.D., Whipple, Ariz.

C. E. Yount, M.D., Prescott, Ariz.

Note: The case selected for discussion is Case No. 13452, of the Case Records of the Massachusetts General Hospital, published in the Boston Medical & Surgical Journal, of Nov. 10, 1927. Appended to the discussion of the Yavapai County-Whipple group will be found the discussion of Dr. Edward

L. Young, Jr., M.D., of the Massachusetts General Hospital, together with the autopsy findings as published in the above named journal.

In presenting these discussions, and similar ones in the future, it is only fair to state that the members of the Yavapai County Society and the staff of Fort Whipple are given opportunity for study and discussion among the group members, before presenting their diagnostic conclusions and clinical discussions, in contrast to the analyses of the Massachusetts General Hospital staff members, whose discussions are usually extemporaneous and made on the spur of the moment. However, the discussions of the doctors from Yavapai County and Fort Whipple are made without written manuscript, the text printed below being based on their recollection of what they said at the meetings. This is necessary, since the Society does not have stenographic reports of their meetings.

CASE HISTORY

A married Englishwoman fifty-three years old, a weaver, entered the hospital June 6 complaining of pain in the left lower quadrant and constipation.

For three years her bowels had been more or less constipated, more so for the past year, and severely constipated for the past six months. There had been no periods of diarrhea. For six months she had had some tenesmus, severe for five months. She had had much eructation of gas and frequently considerable swelling and tenderness of the abdomen. For six months she had had occasional severe cramp-like pains in the lower abdomen especially following eating and especially marked in the left lower quadrant. The attacks were almost invariably accompanied by vomiting with relief. Six weeks before admission her condition became acute. She went to a hospital and was operated upon. Because of unsatisfactory post-operative conditions she was referred to this hospital.

Her mother had epilepsy and died of heart disease. One brother died of tuberculosis.

Her past history was negative except for a "breast abscess" eighteen years ago and the operation mentioned. During the past year her menstruation, previously very regular, had been very irregular.

Clinical examination showed a well nourished woman lying comfortably in bed. Slight psychomotor retardation. Heart and lungs normal. Blood pressure 180/120. Radial arteries moderately thickened, with slight tortuosity and beading. The abdomen showed an eroded ulcerated stoma in the midline half way between the pubis and the umbilicus, its edges red and very tender. The skin had been partially digested away because of the spilling of fecal contents. The stoma admitted a number 15 French catheter 12 inches without difficulty. Large quantities of golden brown frothy discharge with an odor of fermentation exuded from the stoma. Numerous sudden gurgles of peristalsis could be heard without the aid of the stethoscope. The abdomen was distended with gas, making palpation for masses unsatisfactory. Rectal examination showed much tenderness, no masses. Pelvic examination showed a second degree laceration of the perineum and purulent cervical discharge tinged with blood.

Before operation amount of urine not recorded. specific gravity 1.005, urine otherwise negative. Blood: hemoglobin 70 per cent., reds 4,600,000. Wassermann weakly positive. Nonprotein nitrogen 29 milligrams. Blood chloride 532 milligrams. Stool negative.

X-ray examination with a barium enema showed apparent obstruction to the barium at the midportion of the sigmoid loop. The patient was unable to retain the barium after the injected material had reached this point.

Before operation temperature 98.2° to 99.2°, pulse 90 to 120, respiration normal.

June 9 operation was done. Two days later the patient was fairly well. The abdomen was slightly distended. The fluid intake was not so high as it should have been at first, but by the 12th was satisfactory. There was no vomiting. There was much tenderness in the left flank. The temperature was 102.8° June 10, afterwards 98.4° to 99.8° for the next three days. The night of June 11 she was irrational. June 12 there was good drainage and she was feeling better. June 17 the flank was incised in two places and wicks drawn through. Almost nothing was obtained.

June 23 a medical consultant found the heart rate 130, regular, no murmurs, the blood pressure much lower than at entrance and consistent with the tachycardia. There was no heart failure or history of heart symptoms. The cause of the tachycardia was not clear. He advised digitalization in case the rate was maintained without variation for the next few days.

June 25 the patient was weaker, the pulse very poor. The following day it was almost unobtainable. Digitalis was begun. The next day the patient felt better and appeared stronger. The pulse was better. June 29 the pulse was lower, the temperature about normal, the wound about the same. June 30 the patient became somewhat irrational. July 2 she died.

Discussion by DR. JOHN T. MALONE, Group Leader

In our search of the literature for cases illustrative of colonic obstruction due to malignancy, we found two: one reported by N. F. Porter and a second by John F. Erdmann. Porter's case was diagnosed carcinoma of the sigmoid. He made an artificial anus but did no resection. She was discharged from the hospital in nineteen days and shortly thereafter sought to have the fecal fistula closed. This he refused to do, believing that the cecostomy was life saving. Shortly thereafter the patient's family physician advised Dr. Porter that the patient had a natural movement through the rectum, improvement continued and the colostomy closed. John Erdman says: "Some of the earlier reports of long cures of cancer by resection must be taken less seriously at the present time and considered as diverticulitis cases. I can plead guilty to reporting one such patient, a female operated upon by me sixteen years ago (1919) for obstruction supposedly due to carcinoma. The entire pelvis was filled with a hard nodular mass, no temperature, and a complete obstruction existed. A sigmoidostomy

was done. In the course of two years all movements were by the rectum except slight leakage through the now contracted sigmoid anus. This patient is reported well and hearty as late as March, 1925."

Forewarned by mistaken diagnoses like these made by master surgeons, we are forced in the discussion of our case to make a diagnosis NOW, and if possible a correct one, for she died twenty-three days after her second operation and presumably the autopsy findings are conclusive.

Dr. C. C. Benedict will continue the discussion.

Discussion by DR. C. C. BENEDICT

In considering a diagnosis in this case it is conceded that the pathology lies in the lower left quadrant; all symptoms have pointed to that area and the barium enema has proved it. But because this patient is a woman we are forced to consider the possibility of the lesion originating in some one of the generative organs. In order to consider this possibility we would have to assume that the obstruction is due to pressure from without the bowel. Also, that the organ or tumor producing the pressure must be high in the pelvis or above it.

We would first consider involvement of the cervix but there is no tumor of the cervix that could occupy so high a position as to produce the necessary pressure; then, too, we are told that the pelvic examination was negative.

Considering uterine carcinoma, it is unlikely that a malignant tumor of the uterus could become large enough to produce this obstruction without first being evidenced by an uterine discharge. We are told there was a bloody cervical discharge which might suggest carcinoma but I think that that can be excluded.

Uterine fibroid offers the next, and probably the most likely, tumor to produce this condition and the subperitoneal, the most probable type. This growth would be high up and may grow to an enormous size, but it is still difficult to see how the tumor could lie so far to the left side as to obstruct the sigmoid without being palpable in the mid line.

Another type of fibroid that must be considered is the intraligamentous, on the left side. The objection to this type however is that it is difficult for this type to rise high enough, being held down by the broad ligament.

It is believed that both types of fibroid can be excluded.

Ovarian, or tubal cysts of great size or adhesions between broad ligament and

bowel can be excluded for reasons similar to those regarding the fibroid tumors of the uterus.

It is believed that pathology of pelvic organs can be excluded completely and that my successor will show you definitely that the pathology in this case lies in the sigmoid flexure of the colon.

Discussion continued and concluded by

DR. C. E. YOUNT

If, at autopsy, our diagnosis of carcinoma of the sigmoid should prove to be correct, then the courteous statement of Carmen is apropos—"The opinion as to cancer is merely a fortunate prediction."

We are grateful to the judges for having assigned us to a case wherein the pathology is located in the left lower quadrant. It is the first case of the year to focus the attention of the study club to lower left quadrant disease and for this reason should be highly instructive to all of us. You note from the case history that, dating back three years and continuing up to the time when two through and through drains were placed in her left flank, all the symptoms of this English woman of 53 years were referable to the lower left abdomen. I call your attention to the fact that the pathology is "fixed" here because the cramp-like pains were located here, the tenderness was here, the visible peristalsis and gurglings originated here and the x-ray enema located the obstruction here.

I will ask you to note that this woman was admitted in the Massachusetts General Hospital on June 6th complaining of pain in the left lower quadrant and constipation, and because of unsatisfactory post operative condition. On admission she had a stoma located in a midline incision half way between umbilicus and pubes. It admitted a number 15 French scale catheter, its edges were eroded and ulcerated and the skin showed the digestive effect of a fecal fistula. She was not admitted for the closure of the stoma. Was the fistula the result of metastasis, accidental wounding of the cecum, or was it an artificial anus made as a part of the original operation for the relief of the acute obstruction which supervened on a chronic constipation? If it was a fistula of accidental origin then the record would have stated that she was admitted for its closure. If it was intended to serve the purpose of an artificial anus and relieve the obstruction which we know existed in the sigmoid, it was in less than six weeks a failure. No cecostomy with a number 15 French guage aperture could ade-

quately discharge its fecal contents. Was the eroded ulcerated stoma an evidence of metastasis? We can not say, but we know that of all primary carcinomas of the gastro-intestinal tract those of the sigmoid are the slowest and least likely to metastasize (35 per cent).

Considering, then, the cause of admission as pain in the lower left quadrant and constipation and that an operation was performed on June 9th (second operation) the death occurred on July 2nd, it is incumbent on our group to show the probable causes of these cramp-like pains, and constipation which at times attained the proportion of obstruction, at least as evidenced by a barium enema.

In the first place let us recall the anatomical structures of the lower left quadrant in the female. They are the left tube and ovary, and the sigmoid with its meso; behind the sigmoid the left sacral plexus of nerves which are responsible for many of the vagaries of symptomatology here. In front, the sigmoid is separated from the uterus by some coils of the small intestine. We also have the left ureter and a portion of the bladder and rarely a left sided appendix. Often there is omentum.

In considering chronic colon stasis, of which our case is an excellent example, there are at least six conditions which we think must be differentiated.

Hirschsprung's Disease; megalacolon. Judd tells us that the principal complaint made by these patients is their inability to move their bowels without enema together with bowel distention. The distention is most marked in the left side of the pelvis in the region of the sigmoid, continuing upward to the sylenic flexure, usually fading away in the right pelvis. But this condition existed from a few days after birth, i. e. it is congenital. Gant would add to the above the fact that there is moderate vomiting, malnutrition, anemia, gastric disturbances, gas pains, cardiac palpitation, simple or ulcerative colitis. Some patients have marked autointoxication. In fifty per cent of the cases the sigmoid was involved, while the whole colon was found involved in twenty per cent. Gant's case is mentioned as a medical curiosity—a girl of eight had two evacuations yearly, one every six months. It was six weeks before Gant could get her bowels evacuated with careful treatment.

Tuberculosis may cause a chronic colon stasis. Brown and Sampson state that in many cases of cancer an outstanding manifestation is the obstructive symptoms that

are present as well as definite proximal stasis often with dilatation. We might get the obstructive symptoms but scarcely a proximal stasis and dilatation in tuberculosis of the colon. Gant draws attention to the fact that tuberculosis has predilection for the large intestine; first, because of the fluidity of the feces and increased peristalsis in the small intestine; second, because of gastric juice alteration, i. e., alkaline reaction, but when we come to consider location the most frequent site is the cecum, (48 per cent), cecum plus ascending colon (39 per cent). The hyperplastic type, often unassociated with lesions elsewhere, may exist for six months to three years before the tumor is large enough to occlude. The neoplasms are sharply defined, smooth, oval and can often be palpated. Unless there is tuberculosis elsewhere the patient does not look cachectic; no loss of weight or sallow complexion; tenesmus, obstinate diarrhea, mucus, pus or blood for months or years. When these symptoms do appear the patient's condition changes rapidly.

Actinomycosis, while comparatively rare in the colon, must be considered. When present, ray fungus often originates in the appendix or cecum. With the formation of tumors there is rupture through the abdominal wall or into a gut causing a fistula. The symptoms are obscure, constipation alternating with diarrhea, obstructive manifestations followed by a discharge of pus, in which the ray fungus may be detected. The pain is rarely troublesome.

In differentiating syphilis we recall that gummatous infiltration is the most frequent manifestation of lues of the small intestine or colon. They originate in the submucosa and eventually involve all tunics in a sloughing ulceration causing pain, obstruction, diarrhea, with discharge of pus, mucus and blood. In such a case we would expect the Wassermann to be strongly positive and we might rightly expect and find other stigmata of syphilis. There may be manifestations of intestinal obstruction due to encircling gummata or gas pipe sclerotic stricture. Infiltrating and ulcerating gumma often simulate tuberculosis and cancer. Cancer is prone to contract tight adhesions earlier and is usually placed higher up in the bowel.

Diverticulitis was first recognized as a surgical entity in 1898. Moynihan in 1904 published his paper entitled, "The Mimicry of Malignant Disease of the Large Intestine" (Diverticulitis), while in 1907 the Mayos reported five cases operated. In 1922 Carmen tells us that "Peri-diverticuli-

tis is a vexing simulant of cancer of the colon." Our old college chum, McGrath, who has since turned pathologist, tells us that diverticula are "mucosal herniae"—a small projection of the mucous membrane first penetrates the muscular wall to be covered with sub serous fat and peritoneum. John F. Erdmann has given me the desired introduction to diverticulitis in differentiating our case, "Left lower quadrant pain with nausea or vomiting in the male predicates diverticulitis of the sigmoid, while in the female, in whom the disease is of relative infrequency compared to the male, the same situation obtained may mean any one of numerous diseases." Masson in the study of 116 cases finds 81 male and 35 female. They are all over weight and by reason of this fat seem to develop an excess of fat in the intestinal wall, which predisposes to a weakness in the muscularis and herniation of the mucosa. Constipation is a constant predisposing cause operating in a vicious circle. Fifty-nine per cent have obstinate constipation. The physiological role of the sigmoid in modern civilization wherein it becomes overdilated with gas and feces, is another predisposing cause. Diverticulitis is a strong predisposing cause to malignancy and in fourteen per cent of cases Masson found it associated with malignancy. A diverticulum, like the appendix vermiformis, gives little if any evidence of its presence when in the quiescent state, but when inflamed the two have practically the same histo-pathology, leading to rupture and peritonitis. Fecal matter retained within the diverticulum causes irritation and leads to infection, as in appendicitis. In peridiverticulitis there is localized tenderness, obstinate constipation alone or alternating with diarrhea. There is a sensation of blocking, fecal impaction and pain in the sigmoidal region (left sided appendicitis). As the inflammation intensifies the pain increases, likewise there is an increase in temperature, pulse and leucocytes, with nausea and vomiting while blood, pus and mucus may appear in the stools. In the colon we expect to find the diverticula along the mesenteric border where the arteries enter and the connective tissue is relaxed. Masson states, in connection with the x-ray examination, that extraluminal shadows in the picture are proof of diverticula but when obstruction is present the filling defect is identical with that of malignancy. Acquired diverticulitis is usually found in the cecum, colon and sigmoid, the latter presenting the classic type of intestinal pouching. John Erdmann in summing up his report states that "Diverticulitis is a disease

of the left lower quadrant usually, but may occur anywhere along the length of the colon." James T. Case, of Battle Creek brings out a good point in roentgenologic appearance of colonic diverticula, i. e., the residues of the opaque salt seen on the second and third day after the barium meal are carefully located by roentgenograms, then a barium enema is given and their relation to the refilled bowel determined.

Finally the history of our case brings us to a consideration of carcinoma of the colon. They are adeno-carcinomas, because they all have glandular elements. Clinically, they are classed as medullary or soft, scirrhus or hard, colloid and melanotic. They are of slow growth and recur less often than carcinoma of the small intestine. Ewing states that the annular type is especially slow in reaching the mucosa. Osler and McCrea state that "Attacks of colic accompanied by constipation in people past middle life is one of the earliest signs of intestinal cancer." In this connection we quote from the report on "The Prevention of Cancer of the Medical Officer of Health of the Borough of Shelf, England." "Nine. Intestine. Most of these cancers are of the lower bowel and no doubt due to the CHRONIC IRRITATION of constipation."

Constipation, progressive in character interrupted by periods of normal bowel activity, may have acute intestinal obstruction occur at any time, as was present in our case. Carman, in x-ray study of 359 cases, notes carcinoma occurring twice as often in men as in women. The x-ray will furnish emphatic evidence in 90.8 per cent of cases but a diagnosis of cancer can not be made by the x-ray alone. It is simulated by other conditions, especially diverticulitis. He found metastases in only 35 per cent of cases studied. It was often limited or absent. Obstruction to the barium enema was noted in 22 per cent, and he calls attention to the fact that marked stenosis may be found at operation though the roentgenologist did not note obstruction to the enema. He and others have called attention to the fact that feces may pass the stricture, coursing in the normal physiological direction, but the enema "in reverse" may block. Case calls attention to the fact that in carcinoma attended by obstruction there is usually dilatation of the colon on the proximal side. We believe that such a dilatation existed in our case and explained the tympanites, visible peristalsis and sudden audible gurgles. As to frequency of carcinoma in the colon, we note that cancers in and about the rectum lead; but considering the colon alone, the

sigmoid is first, then cecum, then the splenic and hepatic flexures with about equal frequency, then the transverse colon, next the descending colon, and finally the ascending colon. As to symptoms in lower colonic and sigmoid cancer they may be dormant until some degree of obstruction obtains. They are certainly more uniform and less distressing than those of cancer of the small intestine and often are not recognized early. There is only a vagueness of symptoms, an indescribable sensation of something wrong in the abdomen. A mild irritability of the gastrointestinal tract, slightly impaired digestion with increasing constipation or diarrhea. As the growth enlarges or ulceration supervenes we have the onset of very definite and distressing symptoms, constipation more pronounced with gaseous distention of the colon, tenderness and pain. The peristalsis is visible and audible, mucus and muco-pus, blood-tinged or tarry stools. There are abnormally formed feces, sheep dung, ribbon or pencil type. Constant desire to stool when the growth is in the lower sigmoid. Up to this time there has been very little loss in weight or cachexia but now the whole picture changes rapidly. Should obstruction suddenly occur the abdomen becomes immediately surgical.

To fortify our diagnosis of carcinoma of the sigmoid there yet remain a few points in the case history to elucidate. "Stool negative," certainly does not conform to the classic symptoms just recited. However, Gant explains just how such a condition can arise in carcinoma of the sigmoid. If the fluid of semi-solid stool passes the cancerous stricture and is reformed below, it may not show visible evidence of cancer, though a very considerable constriction existed. Nevertheless, we believe that further observation in this or any other patient with carcinoma of the sigmoid must show changes in the stool before death could occur from that cause, unless the obstruction was complete, in which event there would be no stool. "The blood picture," 70 hemoglobin, 4,600,000 reds (no mention of white), does not indicate impending dissolution from carcinoma of the sigmoid, but we are satisfied that at this time the growth had not progressed to the cachexia stage, rather we believe it to have been annular, and obstructive when this cytology was made. "Wassermann weakly positive." Loehlein has shown four positive Wassermann reactions in 250 cases not syphilitic, i. e., tuberculosis and carcinoma.

Finally the manner of her death following the operation of June 9: on only one day

was the temperature 102, the remaining notations are 98.4-99.8. As she grew steadily weaker and died July 2nd we can not, in the absence of fever and leucocyte count, assign sepsis as a cause. We note that she was irrational June 11, but June 12 there was good drainage and she was feeling better. This could have been either defective fecal or pus drainage. We have nothing to decide this point. On June 17th the flank was incised in two places and wicks drawn through. "Almost nothing was obtained." What did they expect to obtain? If pus, the pocket was not drained; if a general carcinomatosis had supervened in the left lower quadrant they would get "almost nothing" in the drainage. An increasing myocardial weakness finally proved fatal and we believe this conforms with the usual finding of carcinomas treated by colostomy and resection where carcinomatosis follows. Our diagnosis is carcinoma of the sigmoid.

Discussion by Dr. EDWARD L. YOUNG, Jr., of the Massachusetts General Hospital (Boston M. & S. Journ., Nov. 10, 1927, page 869.)

From the diagnostic viewpoint the left lower quadrant is different from the right upper quadrant in that we have fewer conditions which can cause pain; and here, with a period of three years during which this trouble had been present, a number of conditions are ruled out, such as the acute inflammatory ones which have to get relief within a short time. So it leaves us with relatively few things that ought to be making trouble. There is the suggestion in the story, with the constipation, the tenesmus and the vomiting and cramp-like pain, that it is intestinal. That story can come, rarely with a clicky pain, from trouble in the urinary tract; but with it, when it has gone for three years, there is some reference to the kidney in other signs and symptoms; it can be in a woman something to do with her pelvic organs. But it is much more the story of a hollow viscus, and that hollow viscus the large bowel. Carcinoma, which we think of always after fifty in this part of the bowel, is as a rule evidenced by mucus, pus, blood, or diarrhea at some time during the stage of trouble. Chronic infectious colitis does not as a rule exist without evidence of ulceration, because that is the basis on which we make the diagnosis. Diverticulitis can be present without causing blood or pus or diarrhea, and can go on to more and more contraction from the inflammatory process around the bowel. This record does not tell us what the acute condition was, but the fact that these pains have been pains of tenesmus and cramp-like gives the suggestion of increasing obstruction.

So that I assume the patient went to the hospital for intestinal obstruction, and that they did some palliative operation to give her the first-stage relief.

Of course at fifty-three she is coming to the time of menopause, which may be and probably is the whole story of the irregularity in menstruation.

Cecal contents, except in cases of extreme rapidity of peristalsis of the bowel, should not erode.

This discharge suggests a fistula in the small bowel, and of course if it is in the small bowel it is not cecal but it is entitled to cause erosion.

Wassermann positive on one occasion is of no importance.

The x-ray backs up our logic as to the seat of trouble in the sigmoid, but does not help us as to what that obstruction is. It may be malignancy in spite of the absence of blood and pus in the bowel movements, or it may be diverticulitis. The rest of the story suggests that in spite of the enterostomy there is obstruction at present.

I think I should say diverticulitis with inflammatory stricture of the sigmoid first, and malignancy second, with an enterostomy put in to give relief from the obstruction low down. I do not think of anything else that I should want to put in here.

Dr. Cabot: Just what are the grounds for the diagnosis of diverticulitis here?

Dr. Young: Trouble for three years. That is not too long for malignancy, but we should have expected an ulcerative process in three years, and the absence of the usual manifestations of a proliferative growth with ulceration makes me put the less common diagnosis first.

Dr. Cabot: That is, most of our data have to be negative.

Dr. Young: Yes. The positive datum as a rule is the presence of the filled pockets elsewhere than at the actual site of the inflammatory obstruction, because diverticulitis as a rule, although it may be localized in one spot, generally shows itself elsewhere in pockets by x-ray.

Dr. Cabot: So that our only positive fact ordinarily is x-ray.

Report on Operation May 13

Median incision. Free fluid in cavity. Intestines much distended. A hard growth about the size of an egg in the sigmoid. Cecum opened and tube inserted. Drainage. Cecum stitched to fascia.

X-Ray Interpretation June 7

Probable lesion in the sigmoid.

Dr. Young's Pre-operative Diagnosis

Diverticulitis with inflammatory stricture of the sigmoid.

Malignant disease of the sigmoid.

Pre-operative Diagnosis

Carcinoma of the sigmoid.

OPERATION

Gas and ether. The condition of the abdomen following the cecostomy was such that the operation was nearly given up. From the whole lower abdomen to a point several inches above the umbilicus was a mass of adherent intestines. Immediately beneath the left rectus wound was a mass of adherent small intestine in which there was a small abscess. To the right of the wound, at its mid-portion, was a hard mass which contained an abscess holding several ounces. The sigmoid was closed with great difficulty. An annular growth was found about two inches above the peritoneal floor. Because of the great mass of adhesions, the infection and the condition of the patient it was considered hopeless to undertake a resection with end-to-end suture. It was decided, therefore, to carry the dissection down to below the growth, clamping and inverting the distal bowel, and bringing out the growth and the sigmoid for a permanent colostomy. The whole operation was difficult. In spite of every precaution it was thought probable that the patient would have an extensive infection.

Pathological Report

A section of large intestine 13 centimeters long. Midway between its cut ends there is an annular ulcerated growth 3 centimeters in greatest diame-

ter. No enlarged lymph-nodes can be found in the attached mesentery.

Microscopic examination shows a structure of clusters of large irregular gland tubules formed by atypical epithelial cells deeply invading the muscular wall. Adenocarcinoma

Additional Notes From the History

June 11 the cecostomy had not drained. June 12 it was draining well and the colostomy wound was draining more. June 15 the colostomy was working. The skin about the cecostomy wound was excoriated. It was planned to use rubber cement. There was good drainage from the wick. June 16 a wick was placed down by the colostomy loop. The following day the flank was incised in two places and wicks were drawn through. June 19 a catheter was placed in the sinus at the upper end of the colostomy and the wound irrigated with Dakin's solution every two hours. Pus could be forced up by the catheter until the wound was washed clean. It was believed the cavity was well drained. The rubber dam wicks were removed. There was little evidence of inflammation in the flank now except around the incision. June 23 the lower wound had separated. It communicated with the upper wound and with the cecostomy wound. Much slough was removed. Dakin's irrigations were omitted and boric substituted because of irritation to the skin. There was a loop of bowel in the lower wound, but it showed no tendency to prolapse. June 25 the bowel in the lower wound was a little more prominent. The discharge was thinner and more profuse. June 28 the skin was more eroded. Suction was applied. It did not work during the night, but afterwards worked well.

Further Discussion.

I assume the cause of death was sepsis. I think it will be interesting to know whether there was any more carcinoma than at that one spot. We are not told in the record that there was any cause to assume that that was based on a diverticulitis.

I do not see how they could have done any differently than they did. I do not quite see why she should have had so much infection following a simple cecostomy at the first operation.

Clinical Diagnosis

(From Hospital Record)

Carcinoma of the sigmoid.
Bronchopneumonia.

Dr. Edward Young's Diagnosis

Carcinoma of the sigmoid.
General sepsis.

Anatomic Diagnoses

1. Primary fatal lesions.
Adenocarcinoma of the sigmoid with metastases.
2. Secondary or terminal lesions.
Sepsis of anterior abdominal wall.
Sclerosis of myocardium.
Hydrothorax (left.)
3. Historical landmarks.
Healed fibrous pleuritis.
Operative wound, sigmoidectomy.

DR. MALLORY: There really is not much to add to what has already been given. There was an extensive gangrenous process in the anterior immediate-wall and a localized area of peritonitis immediately beneath the operative wound. This was very well walled off with fibrous adhesions, and there was no generalized peritonitis. The intestines did show numerous little white, firm nodules in the serous surfaces, quite obviously metastatic foci. It is impossible to say whether those had been present at the time of operation. Nearly a month had passed between the operation in the hospital and

death. I think it is quite possible that the majority of them had developed in that time.

Elsewhere there were no metastases.

The heart was quite atrophic, weighing only 220 grams. It showed a certain degree of the brown atrophy which is so common as a senile process. There was a slight pleuritis and hydrothorax on one side, but no real bronchopneumonia.

CARCINOMA OF RIGHT OVARY

W. R. JAMESON, M. D., El Paso, Texas.

Presented before the El Paso County Medical Society, January 9, 1928.)

Mrs. E.M., 41, was referred by Dr. Paul Gallagher on October 7, 1928.

She complained of pain in the lower abdomen, right side, pain and numbness in right thigh and leg, frequency of urination every hour during the day and about four times at night, and general weakness.

During childhood she had measles, whooping cough, mumps and, she thinks, scarlet fever. Pneumonia at 19 and again 25 years of age, the latter attack being very severe. Appendectomy twelve years ago. Came to El Paso seven years ago with a diagnosis of tuberculosis of left lung. She stated that she had been treated two years ago with radium for cancer of the cervix, with apparent cure. Married thirteen years. Pregnant once, with abortion at third month. Period first appeared between ages of 18 and 19, of 28 day type with great deal of pain. After pregnancy pain was very much relieved.

In February 1926, began to have pain in right kidney region, extending along the course of the ureter. An x-ray picture taken at that time showed a shadow in the lower portion of the right ureter a very short distance from the orifice. The pain lasted about a month and disappeared until May, 1927, when she had a return with rise in temperature varying from 99.3 to 103. This temperature lasted until August, 1927. About this time she slipped and fell, tearing the ligaments of the right thighs, according to her story.

The patient was a fairly well nourished woman, of cachectic appearance. She complained greatly of pain along the course of the sciatic nerve on the right side. Vaginal examination revealed a hard mass on the right side. This mass was immovable, and could only be felt through the right wall of the vagina, as the canal seemed to be closed at the upper end, giving the impression of sticking the finger in the finger of a glove. The cervix could not be felt. T. 99; P. 132; BP. 110-60. Cystoscopy showed a moderately injected right ureteral orifice. No. 4 bougie could not be passed after several trials. On October 17, an open operation was performed to endeavor to extract stone.

One glance was enough to show that the condition was malignant and the wound was closed. She did not improve and slowly became worse until her death on December 25th.

An autopsy was performed the same day by Dr. George Turner, whose report follows:

The peritoneal cavity contains about 300 c.c. of serous fluid. The right ovary, tube, uterus, bladder and a loop of the ileum are adherent, forming a mass that fills the pelvis.

The whole mass is composed of carcinomatous infiltration arising from the right ovary. There are abscess pockets filled with light yellow pus scattered here and there throughout the mass. The cancerous infiltration is not limited to the mentioned structures, but involves the adjacent peritoneum and underlying tissue. The right ureter is lost in cancerous tissue from the level of the fourth lumbar vertebra on through the bladder wall.

As a result of this condition, the right ureter has, for sometime, been obstructed partly from the cancerous infiltration of the ureter itself and partly from a small stone situated in about the middle of the cancer area. Above the cancer area, the ureter is considerably dilated and saccular. The right kidney is practically destroyed from pressure and the pelvis is saccular.

The left ureter is open its full length even though practically all the bladder wall is infiltrated with cancer cells. The left kidney is a little hypertrophied, but appears in good condition, aside from moderate congestion.

The body of the uterus is fixed to the mass by adhesions, but is not infiltrated with the cancer cells. The adherent loop of bowel and tube are distinctly cancerous.

Conclusion: With one kidney functioning and good drainage, it seems that uremia would not be the cause of death. The body is greatly emaciated and cachectic. It seems that cachexia resulting from the "disease cancer" together with associated infection was the actual cause of death.

A CASE OF EPITHELIOMA IN BOY FIFTEEN YEARS OF AGE

By L. L. BROWN, M. D., and C. P. BROWN, M. D.
El Paso, Texas.

(Reported at the Staff meeting of the Hotel Dieu, El Paso, January 11, 1928).

Seven months ago while the patient was entering a burning building his foot went through a burned board, causing a small abrasion over the front of his right tibia half-way between the knee and ankle.

Every effort was made by his local physician to heal this ulcer, but it was very indolent. It would practically heal over, and then break down again. This procedure was often repeated.

When the case was referred to us, we skin-grafted, but the failure was complete. The breaking down and healing process continued for a period of about five months, at the end of which time it was progressively increasing, with no tendency what-

soever, towards healing. It was looked upon as being of some very unusual character.

A blood Wassermann was negative. Swabs from surfaces of the ulcer showed nothing but the usual pus organisms. A biopsy was performed, and the section was reported to be that of squamous epithelioma. The ulcer was about three inches in diameter at this time. (See illustration).



Under an anesthetic there was complete dissection of the inguinal glands followed by extensive cautery removal of the ulcer, going two inches beyond and removing it from beneath, including the periosteum of the tibia. Following this, a layer one-fourth of an inch in thickness was chiseled off the front of the tibia, covering an area considerably larger than the ulcer. The inguinal glands were reported negative for malignancy.

At the end of two weeks, with a nice, fresh, granulating surface we skin-grafted the entire area except the bone which had not yet granulated. Not a single graft survived.

Conclusions: We get into the habit of thinking that epitheliomas and carcinomas do not occur in children. Cases of carcinoma of the uterus have been reported in children as young as two and a half years, and from that on up. Carcinoma of the vagina has been reported in children as young as fourteen months.

It is also of interest to speculate as to when this particular ulcer, which was undoubtedly simple to start with, became malignant.

The case is reported merely to keep before us the fact that cancer may occur, even though rarely, in very young people.

A MODIFICATION OF THE JONES HUMERUS SPLINT

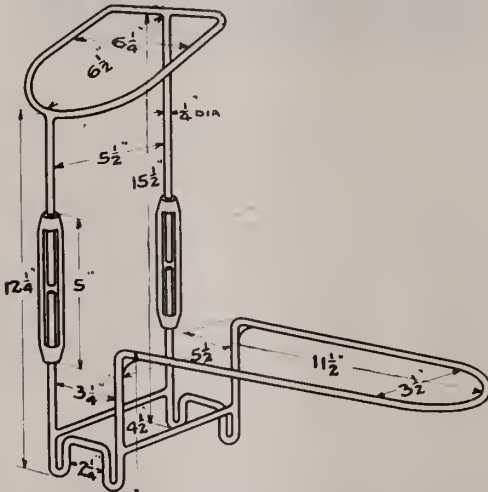
F. T. HOGELAND, M. D.

Chief Surgeon, The Cananea Consolidated Copper Co., Cananea, Sonora, Mexico.

Fractures of the shaft of the humerus are conceded to give a greater percentage of non-union than any other bone in the body, and on this account—next to fractures of the femur in the upper third—they deal the Industrial Surgeon untold misery and grief.

It is not my intention to enter into a detailed account of these fractures, but rather to discuss the splint. However, I think it is well to mention the chief cause of non-union, which, I think all will agree, is **inadequate immobilization**.

In order to secure immobilization with the greatest ease and with the utmost degree of comfort to the patient, and, at the same time, permit x-ray and manual examination of the injured part, and to make necessary adjustments, I have designed the splint as illustrated and which is described as follows:



Sketch drawing of splint. Note cross braces at bottom, either side of loops, to prevent sagging together when traction is made.

The materials for the metal framework of the splint are: approximately seven feet of one-quarter inch round iron and two five-inch metal turnbuckles with one-quarter inch rods so threaded as to lengthen or shorten as the buckle is turned.

The measurements and the form of the

splint are shown clearly in the sketch drawing and any blacksmith or oxy-acetylene welder should make it with ease.

The bow which fits into the axilla should be generously padded to prevent undue pressure on the vessels and nerves of that region.

A piece of unbleached muslin is pinned on the horizontal section of the splint in such a manner as to form a sling in which the forearm rests.

A short, flat metal splint is placed upon the forearm, near the elbow, and resting upon a thick pad of cotton, and a length of cotton webbing two inches in width is passed over it and around the metal loops shown in sketch; fasten the ends with safety pins.

It will be readily seen that, by tightening this webbing, some extension will be made, and by the use of the turnbuckles the vertical section of the splint will be lengthened and any degree of extension may be obtained.



Radiograph of humerus with splint applied. After this film was taken, showing a slight separation of the fragments, the traction was released by a few turns of the buckles.

By the use of the guy tapes laterally, anteriorly or posteriorly applied to either or both fragments correction in alignment may be secured.

The arm, with splint applied, is carried in an ordinary triangular bandage sling.

In cases of compound fractures or bone graft operations on the humerus, dressings may be removed, wound examined and dressings applied, without removing or interfering with the action of the splint in any way.

By turning the buckles until the two sections of the splint are separated and then reversing the upper section, a splint for the opposite arm will be ready for use.

The reproduction of the radiograph of one of my cases, with the splint applied, shows its efficacy in my hands; and if any one else can profit by my idea, I shall indeed feel gratified and well repaid for my effort.

CASE REPORT (TUBERCULOSIS OF THE VAGINA)

W. L. BROWN, M.D., and C. P. BROWN, M. D.,
El Paso, Texas

(Reported at the Staff meeting of the Hotel Dieu, El Paso, Jan. 11, 1928.)

Indian woman, about fifty years of age; married thirty years; no children; never has had any serious illness; somewhat emaciated.

It was difficult for her to get around on account of pain in region of vagina. She complained of constant pain and burning.

Examination showed all the mucous membrane lining the labia completely excoriated down to the muscles. The muscles and fascia showed plainly. This destruction extended completely around the circumference of the vagina, and an inch and a half above the clitoris, it being prominent and denuded. The area around the urethra was swollen to three or four times its normal size, and was coated with an alternating grayish deposit and raw surface. The fat in the labia was completely destroyed. There was no induration. A large quantity of pus was being discharged.

A section from the junction of the ulceration with the skin showed: "Considerable connective tissue, in which there were islands made up of round cells, epithelial cells, and giant cells, forming typical tubercles." (Waite).

A smear from scrapings on the surface of the ulcerated area showed tubercle bacilli. The urine was loaded with pus, and contained tubercle bacilli. Wassermann was negative.

This is an interesting case because of its extreme rarity, as very few cases of tuberculosis of the vagina have been reported, and those have nearly all been in very young children.

The lesion, as observed in this case, was different from anything we had ever seen. The complete absence of mucous membrane down to the muscles, the labia and first part of the vagina, even up around the clitoris, made a remarkable picture. (See illustration).



CASE REPORT (GUN SHOT WOUND OF ABDOMEN)

H. E. STEVENSON, M. D., El Paso, Texas

(Reported at the Staff Conference of the City-County Hospital, El Paso, January 25, 1928.)

P. L., a Mexican man, aged 29, was admitted Dec. 28, 1927, after an encounter with the border patrol, during which he received a gun-shot wound in the abdomen. The bullet penetrated the abdominal wall to the left of the umbilicus, ranged to the right, tore a hole in the wall to the right of the umbilicus which would admit both fists. There were also wounds in the right forearm, which the patient says he held against the abdomen at the time he was shot. The intestines were protruding through the wound, and were very dirty. X-ray examination showed fragments of the bullet in the right forearm. Evidently, an explosive bullet was used.

At operation the intestines and omentum were washed with saline solution and returned to the abdomen. The wound was sutured with No. 2 chromic catgut, reinforced with silkworm gut. Cigarette drains were placed between the wounds and over the abdominal muscles. The large wound drained freely until about Jan. 10, after which there was very little drainage. There was some sloughing of the edges of the wound. This was trimmed and iodoform gauze pack used. On Jan. 16 there was practically no drainage; the wound was granulating nicely. There was very little elevation of temperature at any time.

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NEW MEXICO MEDICAL SOCIETY

The forty-sixth annual session of the New Mexico Medical Society will be held in Albuquerque, on May tenth, eleventh and twelfth. Details of the program will be given in the March and April issues of SOUTHWESTERN MEDICINE.

THE ARIZONA STATE MEETING

The Thirty-seventh Annual Meeting of the Arizona State Medical Association will be held in Tucson, April 19th, 20th and 21st. The program assembled under the direction of Dr. A. C. Carlson, President-Elect, promises to be of unusual interest and practical value. It will fill the three days of the meeting comfortably full. There will be time, however, for the fine hospitality always arranged by the Pima County Medical Society whenever the Association visits them. Of particular interest will be the featuring, at the annual dinner, of the attendance of the surviving charter members of the Association and a coterie of the members of the organization who have reached the age of three score and ten. Special invitations are being issued to these members and it is hoped to have a goodly number of them in attendance to receive the testimonials of respect from their younger confreres.

The provisional program of the Scientific Sessions, includes the following papers:—

Dr. F. C. Schaible, Tucson, Ariz.:—"The Value of the Laboratory to the Clinician."

Dr. John J. McLoone and Dr. Harlan P. Mills, Phoenix, Ariz.: "Endothelioma Involving Base of Tongue (Case Report)."

Dr. W. L. Brown, El Paso, Texas: (To be announced).

Dr. A. C. Scott, of Temple, Texas, will give the oration on surgery, probably on the afternoon of April 19th.

Dr. Frank J. Milloy, Phoenix, Ariz.:—"Etiology and Clinical Signs of Chronic Cholecystitis."

Dr. W. Warner Watkins, Phoenix, Ariz.: "The Roentgenologic Signs of Chronic Cholecystitis."

Dr. E. Payne Palmer, Phoenix, Ariz.:—"The Treatment of Chronic Cholecystitis."

Dr. W. O. Sweek, Phoenix, Ariz.:—"The Technic of Cholecystectomy."

Dr. Henry Dietrich, Los Angeles, Calif. (Fraternal Delegate from California): "Diagnosis and Treatment of Poliomyelitis."

Dr. John C. Wilson, Los Angeles, Calif.:—"Orthopedic Aftercare in Anterior Poliomyelitis."

Dr. G. H. Luckett, Santa Fe, N. M. (Director of Public Health, Fraternal Delegate from New Mexico):—"Public Health Control of Poliomyelitis."

Dr. M. G. Fronske, Flagstaff, Ariz.:—"Report of Cases of Fulminating Poliomyelitis."

Dr. Kimball Bannister, Phoenix, Ariz.:—" (To be announced)."

Dr. Orville H. Brown, Phoenix, Ariz.:—"Treatment of Food Sensitization."

Dr. Hal Rice, Morenci, Ariz.:—"Fractures of the Femur, with Case Report."

Dr. Joseph M. Greer, Mesa, Ariz.:—"Evaluation of Disability after Fractures."

Dr. A. J. McIntyre, Phoenix, Ariz.:—" (To be announced)."

Dr. D. F. Harbridge, Phoenix, Ariz.:—" (To be announced)."

Dr. John W. Flinn, Prescott, Ariz.:—"The Leucocytic Picture as an Aid in the Diagnosis, Prognosis and Treatment of Pulmonary Tuberculosis."

Dr. A. D. Loewy, Prescott, Ariz.:—" (To be announced)."

Dr. J. J. Beatty, Tucson, Ariz.:—"The Healing of Pulmonary Tuberculosis with an Exhibition of Serial Roentgenograms Showing the Various Types of Healing."

Dr. Felix P. Miller, El Paso, Texas:—" (President-Elect of the Texas State Medical

Association; Fraternal Delegate from Texas.) (To be announced).

Dr. R. D. Kennedy, Globe, Ariz.:—(Subject to be announced).

Dr. Edward H. Skinner, Kansas City, Mo.:—President of the American Roentgen Ray Society, by invitation:—"Radiation Treatment of Hemorrhage at the Menopause."

Dr. W. R. Quinn, Morenci, Ariz.:—"The Diagnosis of Uterine Bleeding in Pregnancy."

Dr. H. D. Ketcherside, Yuma, Ariz.:—(Subject to be announced).

The complete program, with final arrangements of subjects and authors will be found in the March issue of **SOUTHWESTERN MEDICINE**.

EARLY BRAXTON TURNAGE (Tucson, Ariz.)

Dr. E. B. Turnage, of Tucson, was accidentally killed by asphyxiation in the bathroom of his home, on the evening of January 16th. The Pima County Medical Society, of which he was a member, adopted the following resolutions of respect and regret, submitted by the committee composed of Drs. W. V. Whitmore, Ira E. Huffman and Alvin Kirmse:

"The members of this society as well as the community in general were greatly shocked by the untimely death of Dr. Turnage which occurred January 15, 1928.

"Dr. Turnage was well trained for his chosen profession. Almost immediately following his graduation from Tulane University in 1917 he came to Arizona. For a short time he was engaged in the Indian service and later, in the Veterans' hospital. During his eight years' residence here he had demonstrated his professional ability and zeal. He contemplated further study and advancement.

"Promptly at the entrance of the United States into the World War, he was participating in the hospital corps. His subsequent interest in the American Legion and in the work of the national guard has been most commendable and valuable. He had a genuine interest in this line of work—having descended on both sides of his family from military, patriotic men.

"He possessed sturdy qualities of character. He was of exemplary habits and life. His tastes were most domestic—a dutiful son, a loving brother, a devoted husband and an affectionate father. Naturally he had many friends.

"Probably his strongest characteristic was his sincerity—a man of deep convictions. He made pretensions of nothing, but what he actually was.

"The memory of this worthy member—his professional ability and aims, his patriotism, his high character and sterling qualities will ever remain with us as an inspiration to greater endeavors for our profession and for humanity."

They are signed by Drs. W. V. Whitmore, Ira E. Huffman, Alvin Kirmse.

HARVEY SPEARS KINARD (El Paso)

On January 20th, Dr. Harvey Kinard, of El Paso, died suddenly of angina pectoris. Dr. Kinard had been practicing in El Paso for the past six years. He was born near Waco, in 1877, and secured his preliminary education there. He graduated from Barnes Medical College in 1908, and spent several years in practice in Beaumont and San Antonio, before moving to El Paso. He was a member of the El Paso County Medical Society, the Texas State Medical Association, the Medical & Surgical Association of the Southwest, a Fellow of the American Medical Association. He is survived by his widow.

JAMES A. MASSIE (Santa Fe, N. M.)

Dr. James A. Massie, of Santa Fe, N. M., succumbed to a sudden attack of heart disease, on February 21st, at the Pueblo Hospital, where he had gone in company with a patient.

Dr. Massie has been a figure in the medical profession of New Mexico for thirty years. After graduation from the University of Toronto in 1892, he came to this state in 1897. For a number of years he has been resident surgeon of the Santa Fe Railroad, the state penitentiary, and the government Indian School. He was unmarried, being survived by two sisters in Santa Fe and a brother in Toronto. He was a member of the Santa Fe County Medical Society, the New Mexico Medical Society and the American Medical Association. The body was taken to Denver for cremation, the ashes to be sent to the old family home in Canada.

EDWARD E. SWEENEY (Globe, Ariz.)

Dr. Edward E. Sweeney, formerly of Ray, Ariz., who had just recently moved to Globe, to be associated with the Old Dominion Hospital staff, died on January 21st, after a brief illness. Dr. Sweeney was thirty-four years of age, and was a graduate of the University of Nebraska College of Medicine, Omaha, class of 1921. He was licensed in Arizona in 1923, and had been practicing in Ray until recently when he moved to Globe. His body was shipped to Lincoln, Neb., for burial.

A NEW ASSOCIATE EDITOR FOR EL PASO.

It is always with some trepidation, each year, that we await the annual change which the El Paso County Medical Society makes in its Associate Editor. Our fears are at rest for the current year. Dr. Harry Leigh is the new Associate Editor, and the fine outlay of material appearing in this issue from El Paso is due to his efforts. Dr. Orville Egbert was a very efficient Associate Editor, but Dr. Leigh has promised to make all his efforts look small.

A CORRECTION IN NAME OF AUTHOR

The "Clinic on Allergy" reported in our January issue has the author as "William T. Drake." This should be "WILLIAM W. DUKE." Those who heard the lecture in El Paso in November will not need this statement, but those who were not at that meeting should know that this fine clinic was given by Dr. Duke, of Kansas City.

YAVAPAI COUNTY CASE RECORD DISCUSSIONS

The Yavapai County Medical Society has agreed to supply their discussions of the Case Records of the Massachusetts General Hospital for publication in this journal. It will be a feature which we heartily commend to the attention of all county society program committees. The Yavapai County society has developed a continual postgraduate study which is worthy of emulation by any similar organization. The full details of their plan was published in the October issue of this journal, with an illustrative discussion.

By comparing their discussions with those of the staff of the Massachusetts General Hospital, an excellent idea of the fine type of work being accomplished in Yavapai County will be obtained.

Any one of the small county societies in the state could well afford to spend one or two evenings a month in studying, and analyzing these or similar case records, and then comparing their analyses with those of eminent clinicians elsewhere. There will be no value in a perfunctory and cursory study of such cases. They require to be STUDIED, with written analyses and then presentation of such clinical analyses by mouth before a group of other physicians. Such a type of meeting will be far more helpful in the development of diagnostic ability, clinical analyses, and management of patients, than listening to any number of papers, no matter how eminent the authors may be. Try it, county societies.

THE DOCTOR AND THE LAW

The complexities of medical practice would not appear to be so great as to require special attention to their legal phases. Yet, in many instances, it behooves the doctor to become acquainted with the legal aspects of his practice, and these aspects are of sufficient importance to justify a course in medical law in every medical school. One or two noteworthy instances have come to our attention recently.

A group of doctors in Arizona were once told by an excellent authority that a corporation could not practice medicine and therefore could not be sued for malpractice, with the suggestion that any doctor could incorporate and thereby escape malpractice suits. Yet we have recently seen an incorporated medical clinic sued for malpractice; the suit was lost but the attorneys' fees were nearly \$300.00. The corporation had proceeded on the belief that it could not be sued—and did not carry corporation insurance,—but it was sued! If there is any incorporated group of doctors in this state who are relying in this belief, it would behoove them to discard such a notion and secure insurance protection.

Another striking example of serious loss because of a legal technicality is the instance of Dr. Chenoweth of Nogales, who relied on straightforward dealings, and the integrity of the people served,—and who is the loser to the extent of \$10,000, because of a law of whose existence he knew nothing: that when asked to do so, he must file his itemized bill against an estate within ten days of the demand. He exceeded this period, and the Supreme Court, while not denying the justice of his claims, decided that they could only follow the law,—however much it might work injustice to an individual. It would seem that in order to practice medicine safely and secure his just compensation for his work, a doctor will need to be a lawyer, as well. County societies might well incorporate into their studies of clinical medicine, a course in elementary law as it relates to their work and compensation therefor.

OUR TWELFTH YEAR

(This editorial was more or less "scrambled" by the composer, when it appeared in our last issue. For fear that it may not have been entirely comprehensible to our readers, it is reproduced here in its proper order):

This issue starts Volume XII, completing the eleventh year of publication of SOUTHWESTERN MEDICINE. So far as

we can ascertain, there is universal satisfaction among the constituents of the four organizations interested in this journal. With the aid of the Cooperative Medical Advertising Bureau of the American Medical Association, the journal is self-supporting. The subscription fees collected from the members of the four organizations owning the journal have allowed us to furnish the cuts for all illustrations submitted, without cost to the authors, except in one instance when the cost in excess of fifty dollars was charged to the author.

The journal has been able to publish all the material obtainable from any of the state or county societies. The chief weakness of the journal is the failure of the county and state officers to use the journal as their medium of communication, for the publication of their transactions and scientific products. There is no single county society in Arizona or New Mexico which avails itself fully of this privilege, and the journal will never be truly representative until this is done.

For our advertisers, we ask our readers to bear in mind this fact: The cost of producing the journal is about thirty cents a copy; the subscription price is \$2.00 a year; the balance of the cost of production is paid by our advertisers. Each subscriber to this journal, therefore, is being paid about \$1.50 a year by our advertisers for the privilege of presenting to him the information about their products. Common honesty and courtesy demand that each subscriber give respectful attention to these advertisements, because the privilege of presenting them has been bought from each subscriber—and paid for. Think it over.

—o—

INSERTED LEAFLET ON TUBERCULOSIS

Through special arrangement with the Arizona Anti-Tuberculosis Association, a special leaflet, giving reviews of articles on tuberculosis, will be distributed with this journal, during 1928. This is a part of the campaign of the National Tuberculosis Association to encourage the early diagnosis of tuberculosis. This journal is glad to use this leaflet, both because we believe in this campaign, and also because the material which will be presented in this way will be of value and interest to our readers.

GRAHAM COUNTY MEDICAL SOCIETY (Arizona)

The physicians of the fertile Gila Valley perfected the organization of the Graham County Medical Society, at a meeting held

at Safford, on Friday evening, February tenth.

Dr. W. W. Watkins, of Phoenix, councilor for the middle district of the Arizona State Medical Association, was present and officially received the new organization into affiliation with the State Association.

An excellent dinner was enjoyed by the six physicians of the valley, as a preliminary to the organization. This dinner was served by the Safford Cafe. The meeting then adjourned to the office of Dr. J. W. Morris, where the organization was perfected. The constitution of the American Medical Association for county societies was adopted, with the proviso that it would be modified to suit local needs.

The following physicians of Gila Valley are the charter members of this new organization:

James W. Morris, Safford, Ariz., graduate of Memphis Hospital Medical College, 1894, licensed in Arizona in 1919.

H. W. Squibb, Safford, Ariz., graduate of Washington University, St. Louis, 1915; licensed in Arizona in 1925.

Geo. W. Langdon, Safford, Ariz., graduate of University of Colorado, 1914; licensed in Arizona in 1927.

J. Newton Stratton, Safford, Ariz., graduate of Southern Methodist University of Texas, 1907; licensed in Arizona in 1907.

Wm. E. Platt, Thatcher, Ariz., graduate of University of Louisville, 1904; licensed in Arizona in 1903.

R. C. Dryden, Pima, Ariz., graduate of Missouri Medical College, 1880, licensed in Arizona in 1909. Dr. Dryden was one of the charter members of the Arizona Territorial Medical Association in 1892; he then was away from Arizona for a number of years, returning in 1908.

The officers elected to serve during 1928 were as follows:

J. Newton Stratton, Safford, President.

Wm. E. Platt, Thatcher, Vice-President.

Geo. W. Langdon, Safford, Secretary-Treasurer.

MALARIA A MENACE TO THE IRRIGATED SOUTHWEST

Several districts in the Southwest, particularly in southern Arizona, have advertised their freedom from malaria as one of their great assets. It must be recognized that there is nothing in the climatic conditions of the Salt River Valley, or other irrigated districts of the southwest, which prevents malaria from flourishing there, once it is introduced. We have never yet seen any authoritative statement that these districts

are free from the anopheles mosquito. If the anopheles mosquito is present or should be introduced, the passage of thousands of tourists from the malaria districts of the south, will supply the only other necessary factor to the establishment of malaria in those sections. We have an example of this in the experience of Dona Ana County in New Mexico, and, what is of more importance, a fine example of what will have to be done from the public health standpoint in any district where malaria becomes established. We quote from the weekly bulletin of the New Mexico Bureau of Public Health of January 24, outlining the situation in the Mesilla Valley which is irrigated by the Elephant Butte dam:

Facing a disagreeable situation frankly and taking prompt action to ameliorate it is an ideal of sanitary practice not always attained. Dona Ana County, however, seems likely to set a mark for the rest of us to aim at. In a comprehensive report on malaria to the County Commissioners, Dr. C. W. Gerber, the County Health Officer, gives every evidence that he "knows where he's going." Since the report was made, public sentiment has been taking shape and definite action to meet the enemy on all fronts will doubtless be taken this year.

"Prior to the summer of 1925" says the report, "few, if any, cases of malaria were encountered in this county. It is substantiated history that, about 50 years ago, malaria was prevalent here during a period of about 5 years. This seemed to be occasioned by the migration of people coming from the malaria infested states or countries and the facility which floods and a changing river course gave for the breeding of the malaria-carrying mosquito.

"There is evidence that this species of mosquito has always been in the county in greater or less numbers, but the drainage canals with their large and extensive growth of grasses and weeds, with a few remaining undrained surface areas, have become ideal places for the breeding of mosquitoes of various species.

"The first cases of malaria reported were in 1925 and they were located in the Dona Ana section. In 1926, the cases increased 450 per cent. In 1927 the increase over 1926 was 1300 per cent. Later evidence showed quite an additional number not reported and not included. During 1925 and 1926 these cases were practically confined to the Dona Ana and Hill sections, with a few in West Picacho. During 1927, the Dona Ana, Hill and West Picacho districts showed the heaviest infection, and later in the season, cases appeared in scattered areas south, as far as Mesquite.

"In most instances these new outbreaks could be traced to the migration of an infected individual from one of the heavily infected areas. Later in the season the Rincon Valley, from Hatch to Garfield began to report cases. The variety of malaria found here was the "Tropical," a very much more severe, and sometimes fatal, form, while the variety found in the Mesilla Valley was the Benign Tertian or common type.

"The first cases appeared unusually early in the year, as relapses from infections occurring in the previous year and were soon followed by cases of new infection. As the season advanced—the first weeks of June—cases appeared more frequently and in larger number so that the latter part of

July showed the disease in what would be considered epidemic form. It held its rate until the first of November when reduction began.

"The malaria mosquitoes were found breeding very heavily in drainage canals in the regions where the disease was first manifested. They were also found in other sections of the country; and wherever an infected person migrated, the disease appeared sooner or later. The malaria mosquito has been observed and its larvae have been found during the months of January and February, showing that our winter weather does not become severe enough and that there is ample protection for the larvae, so that winter killing can not be depended upon to eradicate them.

"The proposed plan for eradication of the malaria mosquito and the sterilization of the blood of these infected—covering the two factors which preclude the prevalence of malaria—involves:

1. The use of larvicide (a poison to kill the "wiggie-tails.)
2. The use of "top minnows" (to eat the "wiggie tails.").
3. The preventive and curative use of quinine.

"It must be understood that any one of these methods, if 100 per cent effective, would accomplish the eradication of malaria; and it must further be understood that, owing to various uncontrollable conditions, no one can be 100 per cent effective. Therefore, a combination of all three gives the highest possible degree of efficiency."

There follows a carefully detailed plan for the application of these three measures, based on studies made by Dr. M. A. Barber of the U. S. Public Health Service during his two visits to Dona Ana County.

GRANT COUNTY (N. M.) MEDICAL SOCIETY.

(December 16, 1927.)

Instead of the regular monthly meeting for December, a dinner and dance was given by the Society to the members and wives of members on the night of December 16th, at the Cottage Sanatorium. Thirty-seven plates were prepared. The dinner was delicious and abundant and thoroughly enjoyed by all present. After the dinner, ten couples repaired to the Elk's Hall for the dance.

The officers for the ensuing year were elected after the dinner:

Dr. N. D. Frazin of Silver City, N. M. was elected president.

Dr. J. E. Lacy of Fort Bayard, N.M. vice-president.

Dr. R. W. Danielson of Hanover, N.M., Secy. and treasurer.

DOCTORS LICENSED TO PRACTICE IN ARIZONA

The Board of Medical Examiners of Arizona report the following doctors licensed to practice in Arizona, at the meeting of the Board in Phoenix, January 3 and 4:—

Dr. Carl A. Anderson, graduate of Univ. of Minn. 1905, by reciprocity with California; located in Tucson.

Dr. Benj. M. Berger, graduate of Univ. of Louisville 1908, by reciprocity with Pennsylvania; located in Phoenix.

Dr. Joseph P. Chiasson, graduate of Loyola Univ., Chicago, 1916, by reciprocity with Illinois; located in Phoenix.

Dr. Roland A. Davidson, graduate of Long Island Hospital Medical College, by reciprocity with U. S. Medical Corps; located in Tucson.

Dr. Wm. Lowe, graduate of New York Univer-

sity, by reciprocity with New York; located in Phoenix.

Dr. Arthur C. Jordan, graduate of Harvard Medical College 1925, by reciprocity with National Board of Medical Examiners; located in Phoenix.

Dr. Geo. W. Langdon, graduate of University of Colo. 1914, by reciprocity with Colorado; located at Safford.

Dr. L. A. Mahone, graduate of Talledega College 1924, by reciprocity with Illinois; located in Phoenix.

Dr. John H. Patterson, graduate of Eclectic Medical College, by examination; located in Phoenix.

Dr. Rupert B. Raney, graduate of Creighton College of Medicine 1927, by examination; located in Phoenix.

Dr. Edward L. Sudlow, graduate of Western Reserve School of Medicine 1927, by examination; located in Bisbee.

Dr. A. B. Thompson, graduate of Howard University College of Medicine 1926, by examination; located in Tucson.

Dr. Joseph W. Davis, of Aguilar, Colo., graduate of Univ. of Kansas in 1906, was licensed by reciprocity with Kansas.

Dr. John I. Mitchell, of Salem, Ind., graduate of Louisville Hospital College of Medicine in 1880, was licensed by reciprocity with Indiana.

Dr. John P. White of New Orleans, graduate of Tulane University in 1909, was licensed by reciprocity with Louisiana.

Dr. Claude E. Putnam of Oklahoma City graduate of Memphis Hospital Med. Coll. in 1909, was licensed by reciprocity with Tennessee.

Dr. W. S. Wilkinson of Dawson, Texas, graduate of Univ. of Texas in 1905, was licensed by reciprocity with Texas.

Two applicants failed in examination and three applicants for license by reciprocity were rejected.

CONTAGIOUS DISEASES IN EL PASO DURING JANUARY

The following contagious diseases were reported in El Paso for the month of January:

Typhoid Fever	4
Small pox	0
Measles	103
Scarlet Fever	92
Whooping Cough	3
Diphtheria	8

Below is given a comparison of the deaths from these contagious diseases in the month of January, for the years 1923 to 1928, inclusive:

	23	24	25	26	27	28
Typhoid Fever	....	1	....	1	....	1
Small pox	11	....	....	....	....	....
Measles	....	1	4	....	....	3
Scarlet Fever	6	....	....	....	1	....
Whooping Cough	....	....	1	3	....	....
Diphtheria	7	2	1	1	....	1
Total	24	4	6	5	1	5

EL PASO COUNTY MEDICAL SOCIETY MEETINGS (January 9)

The first meeting of 1928 was held January 8. The retiring president, DR. E. B. ROGERS, gave a resume of the year's work. He commented especially on certain phases of medical ethics that are apt to be neglected where consultations are held.

The value of friendship of one colleague for another he considered far above the monetary returns for cases secured in an irregular way. He cited the excellent cooperation given by the local society at the convention of the Texas State Medical Association and at the meeting of the Medical & Surgical Association of the Southwest. Some \$5,000.00 were contributed by the El Paso County Society to meet these various convention expenses. He regarded the postgraduate value of the Southwestern meeting as inestimable to those who took advantage of the lectures. He believes that El Paso will soon have a medical arts building and cautioned the local men against renewing long leases. His address was discussed by Drs. Laws and Werley.

DR. F. D. GARRETT read a paper on "Chronic Non-Specific Colitis." He regards the B. coli as the offender in the terminal phase of the disease. If the disease has been specific in origin, the natural intestinal parasites of the usual saprophytic type eventually assume a pronounced pathogenic role. The course of the ulcerative colitis is persistent, stubborn and very likely to terminate fatally if unrelieved. Anemia, weakness, toxemia, loss of appetite and excessive diarrhea present a fairly constant clinical picture. Roentgenograms usually show hypermotility and loss of haustral markings. Pathologically the gut appears extremely indurated, tube like, and lined with fairly large deep ulcers, or occasionally a miliary ulceration is found. Healing and scarring permanently destroy much of the normal anatomy. The treatment is rest, a high protein diet, free of fibrous residue and colon lavage with mildly astringent drugs. Colostomy or ileostomy are to be avoided if possible. These are resorted to only in extremely resistant and toxic cases. Vaccines or vaccines following protein shock with milk injections, sometimes give beneficial results.

Drs. Werley, Haig, Laws, Leigh, E. B. Rogers, Strong and Casellas discussed the paper.

DR. E. J. CUMMINGS, president-elect, gave the report of the Medical Arts Committee which was decidedly optimistic over the prospects of having a new medical home.

DR. W. R. JAMIESON reported a case of carcinoma of the right ovary, and exhibited the pathological specimen. (This case report is published elsewhere in this journal.)

January 16

The annual meeting of the El Paso County Medical Society was held at the William Beaumont General Hospital on January 16, 1928.

The meeting was called to order by Col. Miller and a short address welcoming the El Paso physicians pointedly called attention to the mutual benefit of a close relationship that now exists. The fact that over half of the patients are from the Veterans' Bureau necessitates close co-operation with civilian doctors.

The first half of the program was devoted to surgical cases under MAJOR WRIGHT, Chief of the Surgical Service.

The first patient was presented by CAPT. HUTTON. On December 15, a sergeant at the hospital was admitted and operated on for a suppurative appendicitis with general peritonitis. The abdomen was full of pus and the ruptured appendix was removed. A drain was left in situ. The patient was comfortable for 48 hours when evidence of extreme distention appeared. A duodenal tube was passed and the gas was quickly relieved. The process was repeated later in the day with relief, but eleven inches of the tube was broken off in the stomach with the bucket attached. Gastric lavage was then carried out every four hours with weak

soda bicarbonate solutions. On the 19th about 575 c.c. of duodenal contents were aspirated, showing that there was complete intestinal obstruction. In view of the fact that so much pus had been present in the abdomen an acute paralytic ileus was thought most likely. Gastric lavage every hour for 24 hours began to show clear fluid returning. Usually there were from 50 to 200 c.c. left in the stomach. On December 21, the patient had several copious bowel evacuations. The same evening the patient had three tetanic convulsions of unusual severity. Believing that these convulsions were due to low blood calcium and sodium chloride, a blood chemical examination was done, confirming these suspicions, and these salts were at once started. Five c.c. of a ten per cent solution of calcium chloride and normal saline were given by vein and especially large amounts of the saline with glucose. The tetany rapidly subsided. On Christmas eve the tube that had broken off, passed intact. Convalescence is now well established.

CASE 2. This case was sent to William Beaumont by DR. VARNER with a diagnosis of partial intestinal obstruction due to a right sided strangulated hernia. When the patient was admitted he complained of pain only when the right inguinal canal was explored with the finger. A mass was felt on the middle, left upper surface of bladder. The leucocytes were 20,000, so surgical treatment was deemed urgent. The right inguinal canal was opened but only a small band near the cecum was found. The appendix was removed through the incision. A mass was easily palpable on the left side through the opening. A mid line opening was then made and a portion of the ileum was found incarcerated in a sac between the urachus and the obliterated hypogastric vessels. The ileum was gangrenous and a lateral anastomosis was necessary. The hernial sac was removed and then closed with spiral purse string sutures. Convalescence was stormy but recovery now seems assured. In commenting on the case Capt. Hutton said that up until 1908 only 16 cases had been reported.

CASE 3. MAJ. NEWSOM, Dental Corps, reported a rare tumor at the site of an unerupted third molar. It had evidently been, originally, a dental follicle. Some years previously the patient had had an alveolar abscess in this location. At the time of admission the soldier complained of some pain and swelling. An attempted dental removal revealed a tumor mass of hard enamel and sequestra. The wound was packed with gauze and x-rayed. The hard tumor was seen to extend to the floor of the antrum. Under general ether anesthesia the entire mass was entirely removed. The pathological report classed the tumor as a non-malignant growth. In commenting on the case, Maj. Newsom said that these tumors nearly always occur in people under 25 years of age. The patient in this case however was 29 years old.

CAPT. STAMMEL, roentgenologist at Wm. Beaumont General Hospital, showed several interesting cases. Compressed fractures of the vertebra were briefly discussed as to their mechanism and as to diagnosis by lateral roentgenograms. Six cases varying from single fractures to complete telescoping of several vertebrae were in the group. One old case of cervical injury with compression was included in the group. Two cases of Perthe's disease in young recruits were shown. These cases, doubtless of several years standing, complained of pain when riding horseback. Two cases of Paget's disease were shown and contrasted to syphilitic disease of the lower extremities. The roentgenogram of the lower extremities of a mail carrier with osteochondritis obliterans revealed extensive bone resorption. One case of metastatic

sarcoma of the lung with terminal gangrene was shown in the various stages of development by serial films.

The medical program was in charge of MAJ. DALY, Chief of the Medical Service.

The psychiatrist, CAPT. PRATT, exhibited a case of spasmodic torticollis with some contracture of the muscles of the right shoulder girdle. The patient was 56 years old and gave a history of a primary affection some years ago that probably started as rheumatic. In 1924 the conditions that are now present started after a hard day's work in a harvest field. The head is in continuous rotation with a spastic rigidity of the right shoulder muscles. There is no atrophy. Since the case can be temporarily controlled, Capt. Pratt considered the case psychogenic, as there appeared to be two determinants,—compensation and suggestion.

The second case presented was that of a Veteran's Bureau patient with a lower leg amputation. In 1916 the patient suffered a septicemia while on the border and has been practically dependent ever since. Recently when urged to work he suddenly became tremulous, partly paralyzed and bedridden. The right side appeared spastic. He appeared able to walk and control himself if handled sternly. This was also classed as psychogenic.

A third case of a negro with pseudo-paralysis following an accident, belonging to this class of cases, was also exhibited.

The remainder of the scientific program was devoted to a discussion of postmortem material.

An excellent plate lunch was served by the genial hosts and the meeting was declared very profitable, medically and socially.

January 23

On January 23, DR. HARRY LEIGH presented a paper on "Elective Interference in Obstetrical Practice." The paper defined elective interference as the deliberate shortening of pregnancy or labor itself. Anomalies of the powers, the passages and the passengers which might be benefited by interference were dealt with in detail. When the mother or the baby could not be benefited by interference, the practice must be classed as meddling. Special distress was placed on post-maturity, old primiparity, distention of the uterus by hydramnios or twins, multiple fibroids, prolonged false pains at maturity and dissipation of strength due to long-standing tuberculosis and secondary anemias and the consequent weakening effect on the powers. Malpositions, especially deflexion attitudes and occiput posterior positions, were discussed with the idea of benefit by interference. In the discussion of anomalies of the passages, the importance of correct measurements, medical and obstetrical histories, and extremely large pelves are often minimized or neglected. Placing an indication for interference requires a careful study of the conditions. Conservative obstetrics might be good practice in one environment and with one man while in better surroundings and with a skilled obstetrician, the practice might be considered needlessly dangerous to the fetus or attended with unwarranted pain to the mother. As to the mode of terminating pregnancy, the simplest methods were advocated, such as oil and quinine. If necessary the use of the hydrostatic bags are to be recommended. Pituitrin was not advised for induction. The maneuvers to aid the second stage are varied as are the conditions found. Everything from low outlet forceps to version or cesarean section may be judiciously used if indicated. In no sense were the aids to the art minimized, but rather urged to be employed wherever possible.

Lantern slides of various conditions were shown

to emphasize the importance of a careful study of obstetrical cases.

DR. J. A. RAWLINGS opened the discussion by saying that he advocated conservatism but thoroughly recommended interference when definitely in line with the content of the paper. The use of the hydrostatic bags he recommended in delayed dilatation. Version in the hands of a competent operator he considered good obstetrics in many conditions.

DR. H. T. SAFFORD seconded a warning on the use of version, citing the report at Hotel Dieu, fifty-six per cent of fetal deaths were recorded against one-half per cent when forceps were used.

DR. SWOPE reported a case of carbon monoxide poisoning as a cause of cessation of pains in a room where a charcoal brazier was burning. He also reported two cases of twins where one baby had died several months prior to delivery of a full term second fetus. The dead fetus in each case was enclosed in a separate envelope of membranes.

DR. BRANCH reported a case of triplets where one child had died and had been carried several months until the birth of the twins.

CAPT. CRAIG asked about the essayist's experience with Kielland forceps.

In closing the discussion, DR. LEIGH called attention to the danger of seriously considering figures on death rates from version because in most cases forceps had been attempted and failed, the fetus was often dead and no other means of delivery was convenient, the operators were unskilled, and no definite knowledge of measurements were at hand. Version should not be used if the operator is not thoroughly familiar with the technic. Analytical studies have caused many of the conservative teachers of obstetrics to make more use of version.

(January 30)

El Paso County Medical Society held its regular weekly meeting January 30, 1928, with 28 members present.

After call to order by the president, Dr. E. J. Cummings, the secretary-treasurer, Dr. George Turner, read the minutes of the former meeting, which were approved as read.

A letter of appreciation for flowers and courtesies extended by members of the Society at the funeral of the late Dr. R. A. Wilson, was read.

CLINICAL CASES

DR. E. A. DUNCAN presented cases as follows:

1. Mrs. W., nurse, complained when I first saw her of headache and vomiting; nothing in family history or previous history that has any bearing on present trouble. On Sept. 16, 1927, she bumped her head on a cupboard door, and on the following day, Sept. 17th, she suddenly developed a severe headache, followed shortly afterwards by vomiting. She had no fever but pulse was slow. This condition continued until Sept. 21st, when I saw her, with Dr. Pickett. The picture was one of typical meningitis, without fever, but with violent headache, vomiting, slow pulse, stiff neck, bilateral choked disk. There was no reflex or sensory disturbance. Coordination was not tested, but there was no reason to suspect impairment. Spinal puncture was done and bloody fluid obtained; no other findings except that it was bloody. Through this she got very prompt but not entire relief from headache. For four days the vomiting ceased, then the headache returned and vomiting began again. Another spinal puncture was done and bloody fluid again obtained. This afforded relief and no further spinal punctures were made.

When patient got up, Oct 1st, there was marked

incoordination of right arm and leg. Examination on Oct 20th showed marked incoordination without loss of power, choked disk unchanged, speech very thick and hesitant. She gradually improved from this time on until Nov 14th, when I had the opportunity to look her over again. At this time there was very little change in her condition. She walked very hesitatingly, with stiff gait on her right side, though she stated she had better use of her right arm than before. I could not see very much difference in it when I put it to tests for coordination. Choked disk was now decidedly less, two months after the onset. She had at that time some frontal headaches, perhaps two or three times a week. On Jan. 4th, there was a very decided improvement, much less incoordination, she was able to do her housework, could sew, but gait was still slightly uncertain. She volunteered the information that she had trouble in brushing her teeth, which is a very characteristic sign of cerebral lesion. When she brushed her teeth, she would be very apt to brush her face. I have not seen her since that time until tonight. She is now almost as good as she could be as to gait. There is a little incoordination on the right side. You will notice she cannot perform rhythmic, reversing movements; speech is now perfectly normal.

The case was evidently one of meningeal hemorrhage. It is very difficult for me to make a differential diagnosis between cerebral hemorrhage and that from the meninges. The ordinary type of meningeal hemorrhage we see is the hemorrhage of the new born. Trauma is the next common cause. It can occur in violent acute infections in children, such as scarlet fever. The hemorrhagic form of epidemic meningitis is very rare. At the time we first saw her we thought she had a tuberculous meningitis until the matter of the bloody fluid turned up, but the fact that she had no fever spoke against it. Hemorrhage with whooping cough is a mechanical cause in children, and with adults when of meningeal origin is more apt to be due to what is called pachymeningitis hemorrhagica interna. It is a disease very uncommon in healthy individuals, and very much more common in patients in institutions for the insane, or patients poisoned by lead, cases of chronic alcoholism, etc. The injury is the only possible cause I know of. She was struck on the vertex and the localization was in the right cerebellar hemisphere. The differentiating symptom from ordinary cerebral hemorrhage is the meningeal irritation. I think this is the most important sign. Diagnosis was established by the bloody fluid. It is a very difficult matter to differentiate bleeding from tumor, particularly in the presence of choked disk, which might have existed before, but her steady improvement, entire lack of symptoms, speaks very much against anything of that sort.

Treatment: Spinal puncture.

Prognosis: Ordinarily not good. However, in this particular case, since the improvement has been uninterrupted and she is in perfect health except for this incoordination in the arm, there is no reason why she should not make entire and perfect recovery. She was relieved by spinal puncture. I think she is going to get perfectly well; the choked disk has gone, she can walk, look after her housework and do everything she could before.

Q. How much blood did you withdraw?

Something like 20 to 30 cc.

Q. What is her blood pressure?

She has a low blood pressure, no elevation at all.

CASE 2

A. B., age 19, patient of Dr. Armistead; sent to me with the complaint, "weak hands." Family history of no importance.

Personal History; been a mouth breather all his life; tonsils and adenoids taken out in 1920; at times nervous and tremor attacks when excited. Was told in Fort Worth in 1925 that he had pellagra, on what basis I cannot say.

Present illness; states he has been weak all his life, especially in his hands; cannot carry heavy weights in his hands but can do so if he can put them back on his wrists. Has been employed in railroad shops and instead of picking up the heavier weights, he would pull them back until he could carry them on the muscles of his forearm; has never been able to close his jaws on account of malocclusion of his teeth; with all his teeth out he is still unable to close his jaws. When questioned as to whether he has always had a thin face, he is uncertain, but in a series of pictures taken from the time he was a small infant, up to 17 years of age, it is evident that the atrophy appeared between the ages of nine and thirteen.

Physical examination: Is a mouth breather; has a very high arched palate, under-developed nose, accumulation of sticky saliva in his mouth; there is a severe atrophy of all the muscles in the face, those of expression as well as those of mastication, and of the forearms. Tendon reflexes of arms are absent, no other part of the body involved.

This is not a nervous disease. Myotonia atrophica is evidently present in both hands. This is not Thomsen's disease, as all his muscles go into contraction when he tries to use them and they gradually relax. This is *myotonia atrophica*; a very rare thing and probably different entirely from Thomsen's disease, in which atrophy is rare. His forearms are distinctly atrophied, particularly in this flexor group. When he gets his grip, he cannot relax it; once the muscles contract he does not release them quickly. With the absence of reflexes in his arm, he must have some involvement of the biceps and triceps because their reflex contractions ought not to be absent. His legs are as normal as anybody's. Sensation is present. The malocclusion of his jaws, he says, is not due to this muscular difficulty. I think it is a congenital defect. Kennedy, of New York, says all these patients seem as though they came from the same family; they all have the typical long jaw and narrow face and they all have atrophy about the muscles of the cheek. This is a rare disease. I have tried to dig out what I could in the literature. It was first described in 1902, in Paris, by a Frenchman or Italian named Rossolimo. He reported two or three cases. Later, an Englishman dug out 20 cases, which, though described under different titles, presented unmistakable features of this disease. So far as I know only two cases have been reported in America.

The only treatment is gymnastics and massage.

Prognosis: Good for life; there is always a chance of arrest as the process halts.

DR. BRANCH presented a clinical case. Child six years old, born with absence of right forearm, the only one of seven children in any way deformed at birth. The mother gave history of reaching up to hang up clothes on a rather high clothes line at the time of carrying this child. At its birth she was attended by a mid-wife, after which the attending doctor reported the miniature arm, which was something like the length of a normal index finger. The arm at birth was healed as perfect as it is now. This is the second case I have seen. I delivered a baby some years ago with its fingers off.

Ques. Was the arm perfectly healed when born?

Ans. Yes, it was just like it is now.

Ques. Was there any history of accident?

Ans. The only history I can give is that the

mother was hanging out clothes on a clothes line over her head while she was carrying this baby.

Ques. How much control has she over the stump?

Ans. She can flex it apparently the same as the other arm.

What could I promise the child or the mother in regard to an artificial arm?

It was the general opinion that if an artificial arm was worn, it would have to be changed with the increasing age of the child and that it would hardly be worth while to urge such an appliance until the child reaches the age of fourteen or fifteen years.

DR. G. WERLEY read a paper on "Auricular Fibrillation" citing cases which had come under his practice, and explained electrocardiograph readings.

Discussion was opened by Major Haig, of the William Beaumont General Hospital, and closed by Dr. Werley.

Application for membership of Dr. John E. Morrison, which had been passed upon by the Board of Censors was presented and after proper motion was made and passed, Dr. Morrison was admitted to membership.

Application for membership from Dr. J. J. Gorman was read and directed to be referred to the Board of Censors.

Dr. P. R. Outlaw, City Health Officer, reported the presence of malaria in Dona Ana County, New Mexico, and stated that the number of cases had increased from 450 last year to 1350 at the present time. He asked suggestions which might aid in preventing the disease in El Paso. The suggestion was made that he discuss the matter with the County Health Officer and the Public Health Service representative and report further at the next meeting.

Motion was made, seconded and passed that flowers be sent to Dr. Hugh Crouse who had been seriously ill.

Dr. W. L. Brown spoke in regard to a suit which has been filed against the estate of Dr. Richmond on account of a neglected burn. He stated that he is thoroughly acquainted with the situation; that the man was burned seriously and had a severe case of sickness following. Dr. Richmond acquainted him with the case and consulted him about it on numerous occasions. He carried insurance in the Fort Wayne society and told him he met the agent of the society in San Francisco and the agent assured him and the patient that when he was able to return to work the damages would be taken care of without any suit being filed against Dr. Richmond. The agent not only told Dr. Richmond that but also told the patient. The patient happens to be a man he knows very well and he came over and consulted Dr. Brown about it several months ago. He advised very strongly against his filing suit and told him to try and obtain settlement with the insurance company. He went to Chicago with that purpose in view, but the insurance company took the position, it is reported, that the illness was not caused directly by the burn, but to an infection that ensued following the burn, which, of course, is just a technical way of getting out of paying the claim.

It was suggested that a committee be appointed to find out definitely what stand the insurance company takes in the matter and then take it up with them direct and ascertain their attitude.

After considerable discussion it was deemed advisable to wait until further data has been received which Dr. Cummings said he would probably have in a few days.

No further business coming before the meeting, adjournment followed at 10 p. m.

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ARIZONA DEACONESS HOSPITAL (Phoenix)

(November 1927, Staff Meeting)

The staff of the Arizona Deaconess Hospital met Monday evening, Nov. 28, at the hospital, with twenty-two doctors in attendance.

The minutes of the last council meeting were read and the chairman of the staff announced the committees which will serve for the ensuing year.

The chairman of the Records Committee reported on the deaths which had occurred in the hospital during the past month, as follows:

Case 114. Sarcoma of the head of the humerus. Discussed at last meeting.

Case 1569. Female, age 84, entered the hospital Sept. 24, died Oct. 3. Diagnosis, senility, gastritis and myocarditis.

Case 1636. Endarteritis of middle meningeal artery causing hemiplegia. Case discussed at last meeting.

Case 1640. Perforated gastric ulcer. Case discussed at last meeting.

Case 1652. Acute alimentary intoxication, anhydremia, terminal broncho-pneumonia. Female child, age four months, entered hospital Oct. 10, expired Oct. 13.

Case 1657. Male, age 66, entered hospital Oct. 11, expired Oct. 17. Diagnosis, cerebral hemorrhage.

Case 1679. Mexican boy, age 19, entered the hospital Oct. 17, died Oct. 21. Diagnosis, hemorrhage of meninges, paralysis of right side of body, hypostatic pneumonia, hemorrhage into anterior mediastinal space. Case discussed at last meeting.

Case 1683. Male, age 46. Entered hospital Oct. 17, died Oct. 23. Diagnosis, pulmonary tuberculosis, empyema, tuberculous peritonitis.

Case 1711. Female child, age 5. Entered hospital Oct. 21, died three hours later. Diagnosis, pneumonia.

Case 1718. Male, age 47. Entered hospital Oct. 24, died Oct. 26. Diagnosis, brain abscess, left temporal. Case discussed at this meeting.

The following case reports were made:

CASE 1.

1664: DR. GOODRICH. A case of acute appendicitis, post-operative hemorrhage. This case was one of acute, fulminating appendicitis. There was nothing unusual except for many fatty adhesions and a very friable gut. On the sixth day after operation the patient, after a very smooth convalescence, suddenly felt a severe pain in the right lower abdomen, just following the use of a bed pan. The patient went into profound shock but in a few minutes after emergency stimulation the pulse was beating at the rate of sixty and was of fair quality. Consultation was held that night with Drs. Dysart and Bloomhardt, and we decided that the patient probably had post-operative hemorrhage. A blood count done a few hours after this accident showed red cells 4,120,000, white cells 10,900, 85% hemoglobin. The next morning the red count was 4,360,000 and white count 13,650. Then the patient was seen in consultation with Dr. E. Payne Palmer and it was decided to explore the abdomen. We found large coagula of blood, apparently coming from the region of the stomach and the appendix. This blood was sponged away and the abdomen was closed with drainage. Following this second operation the patient's course was very stormy. He had been gassed during the war and for the past few years suffered from rather severe asthma, but up until the time that this hemorrhage occurred the patient had gotten along well with the exception of temperature of 101 to 102, on the third and fourth days following operation. He was placed on pneumonia precautions at that time and in the course of forty-eight hours the temperature dropped

to normal. Later on the patient developed bilateral phlebitis and still later pyocarditis. On Oct. 30th the patient was given blood transfusion because of a severe anemia and weakness which had gradually developed. He had a severe reaction from the transfusion. Then on Nov. 15th, after showing slow but constant improvement, he suddenly began to have respiratory trouble with weak and irregular pulse. The findings seemed to indicate myocardial deficiency. This condition remained for several days with gradual improvement under therapy and from that time on the patient's convalescence was satisfactory.

In discussion of the case DR. E. P. PALMER made the following remarks. It is important to diagnose this case, if possible, because there is something wrong in the abdomen. The blood count did not change sufficiently to indicate a hemorrhage. His greatest pain was in the left iliac region. We have to consider in a case of this sort, an operation of the appendiceal stump, tearing up of adhesions, gastric or duodenal ulcer, or an ileus. This patient was opened again; how much good we did by reopening him we do not know but we felt better in doing so. Just at this place we wish to caution about the use of enemas too soon after an operation of this nature. I have had two cases where enemas came out of the drainage tube.

DR. BLOOMHARDT said he thought the point of difficulty in the diagnosing of this case lay between mesenteric thrombosis and hemorrhage. In this case the patient went into shock and then began to

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have fever. Has seen two cases of this nature, one a tube case and one an appendicitis case with hemorrhage following enemas. In mesenteric thrombosis one always gets vomiting and a subnormal temperature. In view of the fact that the patient did not vomit or continue to have a subnormal temperature we considered this case as one of post-operative hemorrhage.

DR. HAMER remarked that it was interesting that the patient diagnosed his own case because he said he could feel bleeding going on inside.

CASE II

No. 1662—Strangulated Ventral Hernia, DR. CHAS. S. VIVIAN. This patient was operated on for appendicitis fourteen years ago, and he gives a history of having had, since that time, a slight bulging of the lower end of the incision, at times disappearing entirely. Up to the present time there has been no pain nor is it tender to touch. On Oct. 12th, while at work moving trunks the patient says that he felt something give way on the right side and experienced a great deal of pain. A doctor was called to see the patient. It was not possible to reduce the large hernia which had occurred through the old appendiceal scar. We found an interesting thing at operation: there were three distinct hernial sacs very firmly adhered. We did a regular Andrews type of hernial operation and, as you can see, (patient was demonstrated) had a very good result. The patient's post operative course the first three days was stormy because of a great deal of distention. Then on Oct. 22nd he experienced a severe pain in the left flank which was thought at that time to have been caused by the passing of a urinary calculus. Nothing was done for this condition except simple treatment and the pain subsided within the course of a few hours with no recurrence.

DR. HAMER gave a report on five cases of skull fracture which had been in the hospital in the past few weeks.

CASE III.

No. 1721, a girl, age 19 found lying face downward on one of the streets and brought to the hospital in an unconscious condition. Examination of the patient in the emergency room showed no evidence of external injury except for a small contusion two by two inches, over left occipital region of the skull. The skin over this region was not broken. Pressure over this contusion caused the patient to move about violently and to talk incoherently. There was no bleeding nor discharge from the ears, nose or mouth. The left pupil was larger than the right but both reacted to light. Facial muscles showed periods of violent contraction similar in type to those found in chorea. The reflexes were hyperactive throughout. No paralysis nor paresis of the extremities. No abnormal findings in the heart, lungs nor abdomen. Within two hours after entrance into the hospital the patient regained consciousness but acted violently and talked incoherently, although after another two hours she was fully awake, recognized parents, and talked rationally. There was dilatation of the left pupil and a constant twitching of the facial muscles. X-ray examination showed a fracture in the left occipital region with probably some slight depression of the internal plate. The fracture was circumscribed, roughly Y-shaped. The patient's convalescence was very satisfactory and she was able to be removed to her home in a week. When she left the hospital the muscle twitching had entirely disappeared and there remained only the dilatation of the left pupil.

CASE IV.

No. 1752. This patient entered the hospital on

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Oct. 30th and was discharged on Nov. 26th. The patient was a well nourished young male with ragged laceration over the right side of forehead and numerous bruises; he was completely unconscious with irregular stertorous breathing. There was a hemorrhage into the right orbit with considerable rigidity of the entire body with resistance on the part of the patient to manipulation of any of the extremities or head. The right arm seemed partially paralyzed as the patient did not move it. Breathing was very irregular and the apex beat of the heart was two fingers within mammary line. Heart rate was slow, averaging 50 to 60 per minute; pulse was full, and of good value; blood pressure 140-90. Knee jerks were not elicited. No Babinski; no ankle clonus. Examination of the cranial vault and base of the skull did not show definite fracture involving either of these areas. The patient lay in a coma for over two weeks and by Nov. 15 his general condition was satisfactory. From that time on there was a gradual improvement of speech and mental condition. By Nov. 25th speech was fairly clear and motion was completely recovered in the right hand and arm. Patient was discharged Nov. 26th in a highly satisfactory condition.

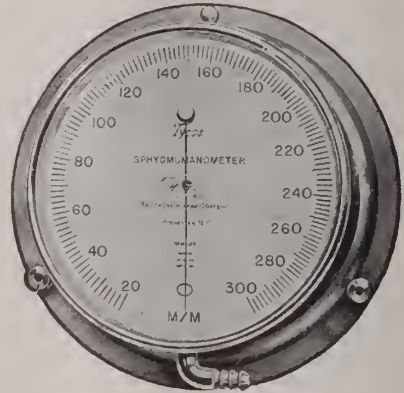
CASE V.

No. 1763. This patient was brought to the emergency room following an automobile accident. He was unconscious and vomiting food material. There was no evidence of injury on external examination except that the patient had a very rapid and jerky type of respiration with definite respiratory grunt. The sense organs indicated nothing to suggest intracranial injury. The pupils were regular and reacted normally; the neck was held somewhat rigidly. There was no evidence of fracture of ribs nor injury to the chest. Examination of the rest of the body was entirely negative. Radiographs of the head of this patient showed a linear fracture in the left occipital bone, apparently involving the basal area. Radiograph of the chest did not show evidence of rib fracture, nor pulmonary consolidation in the thorax. This patient's condition was very satisfactory until the third day after admission. There was nothing that indicated any intracranial injury but after the third day it was noticed that the child began having choreiform movements of the right arm and hand and alternate dilatation and contraction of pupils. The pulse gradually rose from 100 to 160, temperature to 105, and respiration 24 to 44, within a period of thirty hours. This patient was admitted on Nov. 3rd, was apparently getting along nicely until the 5th, then suddenly showed evidence of intra-cranial injury and died the next day.

CASE VI.

No. 1765. This patient was a girl age 6 who was injured in an automobile accident. Upon admission the face and head were completely covered with blood and the child was vomiting profusely of food material and blood. There was a laceration about one and one-half inches long, high in region of left parietal bone; both ears were discharging blood freely; with the blood was spinal fluid. The pupils were equal and reacted to light. There was profuse hemorrhage of spinal fluid and blood from the nose and mouth. The only other injury found was a laceration $\frac{3}{4}$ inch long on the dorsal surface of the left wrist. No evidence of injury to chest or abdomen. X-ray showed linear crescent shaped fracture of the left parietal region just above the shadow of the skin clips used to close the scalp wound. There appeared to some depression at site of fracture. She ran a temperature, after the second day, of 103 to 104. The pulse averaged 150-160 and the respiration 48 to 50.

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No improvement was noticed at any time. She remained in a semi-conscious condition. She was able to swallow nourishment. Occasionally she would become very restless and would cry and on one or two occasions seemed to recognize objects. However, on the ninth day after admission she developed definite symptoms of meningitis and died the following day. Whether the source of the meningitis was through the scalp wound, the ears or the nose I do not know, but after these symptoms the temperature rose to 106 and the respiration to 60.

CASE VII.

No. 1679. A Mexican lad about 19 years of age, fell from a truck and was brought to the emergency room unconscious. No evidence of injury to the cranial bones could be found but there were several superficial abrasions over the right jaw and chin. The auditory canal was patent; no bleeding from the ears; left pupil was slightly irregular and larger than the right; and there was constant rotary motion of eye-balls. The nose was bleeding slightly; no bleeding nor discharge from the mouth. Movement of the head was free and easy; no fractured ribs could be found. Examination of the lungs showed no abnormal findings throughout. The heart was not enlarged nor displaced; sounds were clear but irregular, averaging 100 to 120 and at times the rate increased suddenly, 140 to 150. There was paralysis of the right arm and partial paralysis of right leg. We had the head x-rayed but no fracture line in any portion of the skull could be found. The patient lay in an unconscious condition for a period of five days, and finally expired on Nov. 21st with definite signs of hypostatic pneumonia in both lungs. Autopsy performed showed marked congestion throughout both lungs, and several isolated healed tubercles in the left apex. The heart was soft and flabby with normal size and color. Stomach was widely dilated; spleen was dark red in color, more firm than normal and showed a septum through the middle portion, which separated the spleen into two distinct lobes. There were no perforations nor ulcers in the intestines and no evidence of liver injury. In the mediastinum there was a large effusion of blood into the superior and anterior mediastinum. The brain was opened and there was found extensive hemorrhage over the lateral and temporal regions of the left side. No fracture of the cranial bones could be found.

Dr. Hamer took the notes in the absence of the secretary. Adjourned.

ORVILLE HARRY BROWN, Secretary.

ARIZONA DEACONESS HOSPITAL (PHOENIX)

January Staff Meeting).

The Staff of the Arizona Deaconess Hospital met Monday evening, Jan. 23, at the hospital, Dr. L. H. Thayer, chairman of the staff, presiding. Thirty-one physicians were present.

The minutes of the last council meeting were read. Motion was made that members of the active staff who have not attended seventy-five per cent of the staff meetings during the past year be dropped to associate membership. There was considerable discussion and the motion was finally tabled by vote until the next staff meeting.

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Dr. Gordon Shackelford (dentist) was elected to such membership as he may choose.

Dr. S. I. Bloomhardt, of the Records Committee made a report in summary of the deaths for the past two months they were classified as follows: Fractured skull (three); cerebral hemorrhage (two); gun shot wounds (two); exophthalmic goitre (one); broncho-pneumonia (two); pulmonary tuberculosis (one); laryngeal tuberculosis (one); influenza (one); nephritis (one); gas gangrene (one).

The two cases of fractured skull (1763 and 1765) were discussed at the last staff meeting.

In Case 1854, cerebral hemorrhage, the history and physical findings were scanty; there was no record of blood pressure; there was a consultation but no record of consultant's opinion.

In Case 1833, cerebral hemorrhage, there was a fair history; patient was unable to talk; there was a good record of physical examination, but no blood pressure recorded.

In Case 1811, gunshot wound, patient died a short time after entering hospital; injury was suicidal secondary to long standing physical ailments.

In Case 2050, gunshot wounds of neck, abdomen and thorax, operation was performed which lasted one hour. In such cases, the time element of operation is of great importance; this was one of the lesions which came out of the recent war.

In Case 1778, exophthalmic goitre, terminal stage, a medical history would have been of value, but this was lacking. In such cases as complete a record as possible would have great scientific value and make record studies much more interesting.

In Case 1777, perforated gastric ulcer and general peritonitis, an appendectomy was done before surgical repair of the ulcer was begun; total time

of operation was one hour and forty-five minutes. It is a question whether it was good surgery to waste time on the appendectomy before attacking the ulcer, because in such cases, time is of extreme importance and the less handling of the intestines, the better.

In Case 1950, broncho-pneumonia in an aged person with nephritis, there is a good history and detailed physical findings.

In Case 1903, pulmonary tuberculosis complicated by asthma and myocarditis, there is a good history with excellent physical, with careful study of the case. Such a history is of value for study of records and for statistical purposes.

In Case 1908, diagnosed tuberculosis of larynx, there is a question whether this is a proper classification as a cause of death, or whether it is always a complication of lung tuberculosis. There was no history, but very good physical examination; patient being unable to talk probably accounts for incomplete history.


In Case 1994, myocarditis and influenza, it was evidently difficult to get history. In such a case, the value of the record would depend on the completeness of the physical examination. In this case the physical examination was of no value.

In Case 2075, influenza, the point of interest was that the undertaker was notified, according to the notes, before the patient died. Some treatment was given after such notification. There was no laboratory substantiation of the diagnosis.

In Case 1921, nephritis, patient was moribund on admission. History was poor on account of condition of patient.

In Case 1915, gas gangrene, record will be presented at this meeting.

In commenting on these records, DR. BLOOM-



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HARDT stated that very few records of blood pressure were found; if the physicians take the blood pressure, they often fail to record the findings. Blood pressure should certainly be charted on all cases of apoplexy, nephritis, head injury, etc. While a good many consultations were held, there are relatively few records of the consultants' opinions and findings. When unable to get definite history, the physician should pay more attention to the physical findings, in order to have something to back up the diagnosis and make records more complete. The charts are much improved over what they were some years ago, and with the cooperation of all the staff members, they could be still further improved.

DR. R. J. STROUD, of the Records Committee, made report based on review of the clinical records for the past two months.

(Continued in March Issue)

PROFESSIONAL NEWS FROM NEW MEXICO

The recent arrest of DR. GEORGE E. FOSBERG, of Chicago, by the Denver authorities, the latter part of January, awoke unpleasant memories in the minds of several citizens of Santa Fe. This adventurer promoted a dry farming project several years ago in the neighborhood of Santa Fe, the only visible result of which was a juicy crop of "suckers." The Santa Fe New Mexican, from which this bit of news is culled, does not reveal whether any of the medical profession of Santa Fe were among those who bit; if not, it was remarkable, because physicians are proverbially wooly lambs waiting to be shorn by any kind of skin game.

DR. CARL REED, formerly of the Veterans' Bureau at Fort Lyons, Colo., has been promoted to the place of regional director of the Veterans' Bureau for New Mexico, taking the place of Dr. D. C. Dodds, recently deceased. Dr. and Mrs. Reed have taken up their residence at the Parkview apartments, in Albuquerque.

DR. GEORGE H. PARMENTER, of Fort Bayard, who was placed temporarily in charge of the Veterans' Bureau at Albuquerque, following the death of Dr. D. C. Dodds, regional director, has been relieved and has returned to his post at Fort Bayard, where he is assistant medical director.

POSTGRADUATE MEDICAL COURSE AT UNIVERSITY OF NEW MEXICO:—Considerable interest has been aroused by the proposal of the University of New Mexico, at Albuquerque, to hold a summer lecture course for physicians, lasting about ten days. A conference was held recently between Dr. J. F. Zimmerman, president of the university; Dr. S. P. Nanninga, director of the summer session; Dr. G. C. Luckett, director of the state health department; Dr. L. B. Cohenour, secretary of the New Mexico Medical Society. A questionnaire is being circulated among the physicians of the state to ascertain their interest in the course, and it is understood that the lecturers will have the approval of the executive committee of the State Medical Society, before being selected.

DR. G. W. LUCKEY, of Albuquerque, the full time health officer for that city and Bernalillo County, has resigned to take the health officership of a county in West Virginia. The place to which he goes is being vacated by Dr. W. H. Enneis, formerly health officer of Union County and prior to that, of Eddy County. It is understood that Dr. Enneis has been appointed health officer for Knoxville, Tenn. New Mexico is a favorite hunting ground for counties and cities looking for capable health officers.

DR. JAMES R. SCOTT, formerly health officer

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HUGH S. WHITE, M. D.
FRED C. LAMB, Analytical Chemist

of Bernalillo County, from which place he was drafted into a similar position at Berkeley, Calif., has been induced to return to Albuquerque to take over his old position. He will arrive about April 1st, and will be welcomed by a host of friends in New Mexico.

NEW MEXICO AIDS IN MALARIA FIGHT IN DONA ANA COUNTY. With the approval of Governor Dillon, the State Board of Public Welfare will borrow \$2500 with which to inaugurate the anti-malaria campaign in Dona Ana County. This step was taken because of the emergency existing and the necessity of commencing operations at once, before county money could be made available.

Malaria-bearing mosquitoes have already made their appearance in the county and it is feared, in view of last year's experience, that the disease may spread up the Rio Grande Valley unless extensive mosquito control activities are begun now. It is planned to treat a large portion of the drainage ditches with Paris green, mixed with dust; to introduce "top-minnows" in these waters, and to arrange for quinine treatment of known human "carriers" of the malaria organisms. By making a simultaneous attack on two fronts it should be possible to reduce the infection materially, this summer. These tactics were outlined by Dr. M. A. Barber, malaria expert of the U. S. Public Health Service, who has studied the local situation on the ground for two seasons. Dr. Barber promises to return, this summer, to aid in combating the scourge and to check up on results.

Much credit is due Dr. C. W. Gerber, County Health officer, who has planned the details of this campaign and has presented it so forcefully to his community that there is unanimous sentiment behind him in favor of radical measures. As soon as the County Commissioners can budget and levy taxes for the next fiscal year, beginning July 1, they will take over the cost of further operations. Only rarely have we seen such enthusiasm for a public health undertaking as seems to prevail among non-official groups in Dona Ana County.

The BOARD OF MEDICAL EXAMINERS OF New Mexico is the loser in a court case, in which they endeavored to revoke the license of Dr. Joseph Gaines for unprofessional advertising. The court held that advertising is not sufficient grounds for revocation of license under the New Mexico law.

ARIZONA NEWS

DR. VIRGIL G. PRESSON, formerly health officer of Orange, County, California, has entered practice at Tucson, Arizona.

ARIZONA STATE BOARD OF NURSE EXAMINERS held a meeting in Phoenix the last week in January. Miss Helen Eagan, R.N., of Phoenix, was elected president of the board and Miss Catherine Beagan, R.N. of Prescott, secretary-treasurer.

A **MEDICAL CLINIC** has been established at the Baptist Christian Center in Tucson, on S. Stone Ave. Weekly baby clinics will be held by Dr. R. K. Smith. The Pima County Health Center will cooperate in this work through Miss Minnie C. Benson, directing nurse, in the follow-up work in the homes.

The **COUNTY HOSPITAL** of Cochise County, located about five miles from Douglas, is the subject of an interesting description in the Douglas (Ariz.) Dispatch of Jan. 29th. This hospital with capacity for seventy patients is a very excellent institution. The average number of patients during 1927 was fifty-five. The hospital is well equipped, with a staff of nine nurses. Dr. E. W. Adamson is the chief physician.

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HEALTH EDUCATION will be required in the grade schools of Arizona, beginning with the session of 1928-29. There will be a director of physical education who will have charge of this work in supervising the health education courses in the schools of the state.

DR. J. W. BAZELL of Winslow, reports the incidence of a number of cases of chicken pox in the schools of that town.

The BIRTHS IN ARIZONA are keeping a big lead over the deaths, according to the reports from the Vital Statistics Department at the capitol. This has not always been so. Some years ago, when the state was flooded with large numbers of indigent tuberculous patients in the last stages of the disease, the deaths would often exceed the births.

The TOWN COUNCIL OF SAFFORD has adopted the standard United States Public Health Service ordinance relative to milk sold in the town, and hereafter all milk sold there must be graded according to these requirements.

DR. R. B. DURFEE, public school health director for Bisbee, has been busy vaccinating the school children. Up to Feb. 3rd, more than 200 had been vaccinated.

DR. W. H. LOUNT, formerly of Phoenix, specialist in eye, ear, nose and throat diseases, has removed to Yuma, where he will be associated in practice with Drs. Ketcherside and Shields.

DR. THOMAS W. WOODMAN of Phoenix, has opened new offices at 703 Heard Building, and will be engaged in general practice. Dr. Woodman has been associated with Dr. W. O. Sweek for the past two years.

The YUMA GENERAL HOSPITAL is to have a new nurses' home, contract for which has been let. It will be a one-story brick dormitory of

seven rooms, and is to be completed within ninety days.

TUBERCULOSIS SANATORIUMS in Tucson will hereafter be under the control of the city council, that portion of the city ordinance giving the owners of adjoining property the right to object to the issuance of permits, having been repealed.

The HEALTH CENTER of Tucson has been given a new Ford car by a wealthy winter visitor to the city, whose sympathy was aroused by the dilapidated condition of the car being used by the visiting nurse.

A SANITARIUM for the poor of Agua Prieta is to be constructed through the efforts of the P.K.L. Club of that city which is just across the border from Douglas.

DR. W. F. CHENOWETH, of Nogales, is apparently to be the loser to the extent of \$10,000, by failure to comply with a law of which he was ignorant with regard to filing a bill for services. After securing the ruling of the Superior Court of Santa Cruz county in favor of his bill against an estate, the Supreme Court has reversed the decision on the ground that the doctor failed to file his bill of particulars within the time required by law.

DR. RAYMOND BROKAW, Field Representative of the American Society for the Control of Cancer, spent several days in Arizona, the latter part of January. He spoke before the Maricopa County Medical Society, the Parent-Teachers Association in Phoenix, and luncheon clubs.

DR. RICHARD E. YELLOTT of Benson, city health officer, announces that the Standard Milk Ordinance of the United States Public Health Service has been adopted by that city and will go into effect in the near future.

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Los Angeles
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will hold its annual Congress in New Orleans, March 5th to 9th. A special feature of the program will be the addresses and clinics of Dr. Julius Bauer, of the University of Vienna. Dr. Bauer is one of the great personalities in medicine and will no doubt draw many visitors to the Congress, who would not otherwise attend. Among the papers on the program is one by DR. JOHN W. FLINN, of Prescott, on 'The Differential Blood Count in One Thousand Cases of Active Tuberculosis.'

EL PASO PERSONAL NOTES

DR. JOHN MOIR, of Deming, was a visitor to El Paso early in January.

DR. and MRS. JAMES VANCE have been spending several weeks in Mexico City. Upon their return the doctor commented very favorably on the quality and quantity of "Scotch" to be had in our neighboring republic.

DR. RAYMOND BROKAW, field representative of the American Society for the Control of Cancer, paid the local El Paso physicians a visit January 14.

DR. HUGH CROUSE who has been critically ill for several weeks is convalescing satisfactorily.

DR. BRANCH CRAIGE has returned from an extended trip to New York and his old home in South Carolina. Dr. Craige has announced his intention of limiting his practice to pediatrics.

DR. R. L. MARRETT was recently elected a member of the El Paso County Medical Society. He has offices in the Roberts-Banner Building. Dr. Marrett was graduated from Texas University Medical School and interned at El Paso City-County Hospital.

DR. J. E. MORRISON was recently elected to the El Paso County Medical Society. He will office in the Mills Building. Dr. Morrison was graduated from Texas University Medical School, class of 1923. He interned at Cleveland City Hospital, Cleveland, Ohio, and Grassland Hospital, New York City.

An item of more than passing interest has recently been called to our attention. DR. M. S. MOLLOY, of Ysleta, Texas, recently answered a call to a child that had already suffocated from a laryngeal diphtheria. The facts as revealed through an overheard telephone conversation and from the father typifies the ultimate confidence in Christian Science faith. It seems that the baby had received "absent treatment" from a very prominent El Paso "Scientist" for three days prior to its death. When informed that the baby "appeared" to be choking, the practitioner advised calling a physician. After it was evident that the baby had died the father assured the practitioner of his absolute confidence. This gentleman who can minister comfortably at home to laryngeal diphtheria has reasons to be well remembered in El Paso by his violent (ineffective) opposition to compulsory vaccination in his own city and by his vigorous efforts to have the Medical Practice Act modified at Austin to enable Scientists to charge for such valuable services as herewith depicted.

DR. Z. COUSEY, of Douglas, Arizona, was a visitor in El Paso, February 1.

DR. R. L. RAMEY, of El Paso, is now the president of the Pacific Association of Railway Surgeons, owing to the death of Dr. E. G. Goodrich of Los Angeles, who was the president. Dr. Ramey was elected first vice-president of the organization at their meeting in San Francisco last August.

The Hospital Staff of the HOTEL DIEU met

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January 11th. The scientific program for the evening was furnished by Drs. Paul Gallagher and Drs. Brown and Brown.

Dr. Paul Gallagher presented a case for diagnosis which is still under observation and will be reported at a later date.

Dr. W. L. Brown presented two cases. (details of which will be found elsewhere in this issue.)

Case I was an instance of tuberculosis of the vagina.

Case 2 was an epithelioma in a boy fifteen years old.

The Staff of the **CITY-COUNTY HOSPITAL** met January 25th. The case of chief interest in the program was presented by Dr. H. E. Stevenson. It was a very severe gunshot injury to the abdomen with recovery. It will be found reported elsewhere in this issue.

The Thirteenth Annual Convention of the Catholic Hospital Association of the United States and Canada and the Second Annual Hospital Clinical Congress of North America, will be held in the Cincinnati Music Hall, Cincinnati, Ohio. June 18th to 22nd, inclusive, 1928. The Fourth Annual Convention of the International Guild of Nurses will be held at the same time, in the same building, at night meetings.

This Convention and Congress will be one of the largest and most important hospital meetings of the year, and will comprise general scientific meeting, special clinics or demonstrations of hospital departments, and three hundred special commercial and educational exhibits. Outstanding authorities in medicine, surgery, pathology, nursing, dietetics and hospital administration, architecture and en-

gineering, will lecture and demonstrate in specially planned clinics representing the various departments of the modern hospital. A professional program of the highest interest and value is now being formulated, and all persons interested in medical and hospital service are cordially invited to attend. Further information may be obtained from John R. Hughes, M. D., Dean of the College of Hospital Administration, Marquette University, Milwaukee, Wisconsin, who is General Chairman of the Convention and Congress.

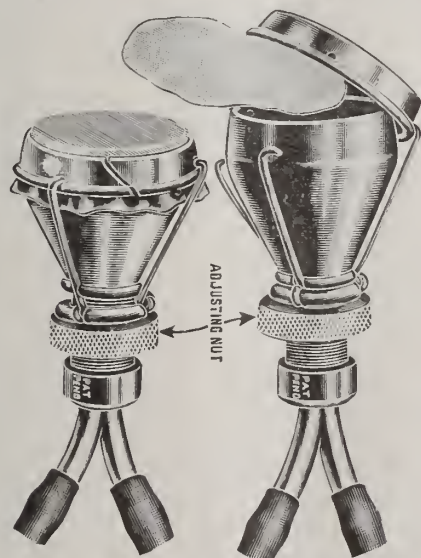
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A sensitive Stethoscope which intensifies the weakest sounds.

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Neo-Silvol in aqueous solution is especially valuable in inflammatory affections of the eye, ear, nose, throat, urethra, and bladder. As a pyelographic medium in 20 per cent solution it casts clear shadows on the X-ray film and, far from being toxic, has a soothing and healing effect.

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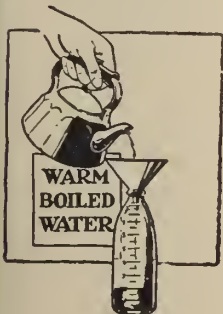
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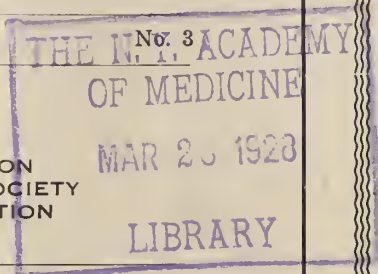
Arizona State Medical Association, Tucson, April 19, 20, 21, 1928
New Mexico Medical Society, Albuquerque, May 10, 11, 12, 1928

SOUTHWESTERN MEDICINE

Volume XII.

MARCH, 1928

OFFICIAL ORGAN
OF THE
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ARIZONA STATE MEDICAL ASSOCIATION
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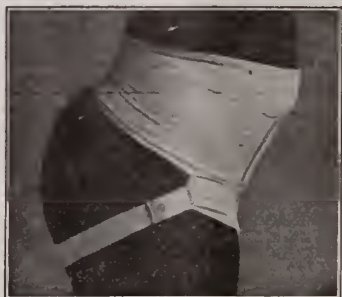
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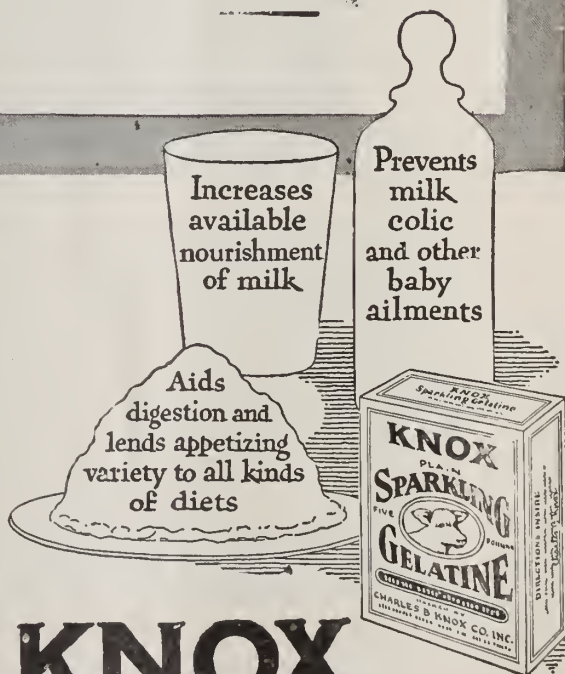
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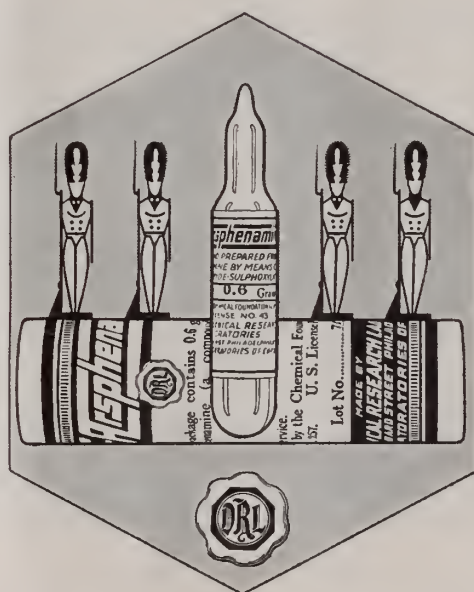
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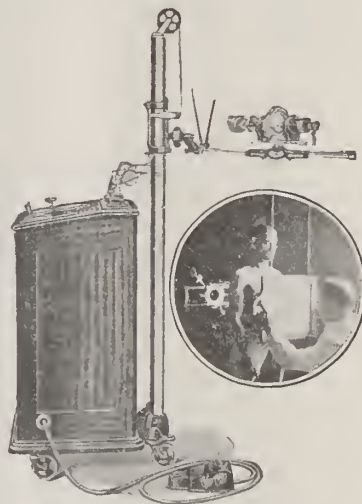
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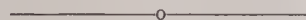
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BUSINESS METHODS IN MEDICAL PRACTICE

D. E. WILSON, Attorney,
Merchants & Manufacturers Association,
Phoenix, Ariz.

(Before the Maricopa County Medical Society, at regular bi-monthly meeting, Phoenix, Feb. 6, 1928.)

At the request of one of your members I have been invited to make a talk on how a credit rating bureau would benefit the physicians of this community.

I am going to assume, to begin with, that a physician's services are cash, unless otherwise agreed.

Shrewd business men have for a long time realized the benefit of credit rating bureaus. The wholesale men who sell to the retailers are practically all subscribers to the services of Dunn's Mercantile Agency or Bradstreet's. These two credit bureaus furnish credit reports, exclusively to wholesale concerns, as to how retail men meet their obligations. On the other hand, the retail merchants have also long realized the benefit of credit rating bureaus which furnish them with reports as to how individuals meet their obligations. The organization which furnishes these credit reports on individuals in Phoenix, is the Merchants and Manufacturers Association. Surely if credit rating bureaus are good for shrewd business men they would also be a great benefit to physicians.

Any credit rating bureau which would be of benefit to the physicians would function along lines similar to those of the M. & M. Association. I will try to explain to you as briefly as possible how the M. & M. functions.

We have from 25,000 to 30,000 files showing how as many individuals meet their current bills. Let us say, for example, that John Smith applies for credit at Korrick's, filling out the application blank, giving his full name, address, his business connections, his occupation, and approximately his present salary or income. The credit manager at Korrick's immediately calls up the M. & M. and says: "Give me a report on John Smith." We go through our files and find that John

Smith pays his grocery bill every thirty days, his clothing bills every sixty days, but that he does not pay the bills of his physician; that we now have a claim in the office from a local physician to collect from this party. With such a report as this Korrick's would probably be justified in extending him a reasonable amount of credit, but if a physician should happen to call for a report on this party and found that he paid promptly all of his bills except the bills of his physician, of course the physician would not wish to extend him credit.

Let us suppose that this man's report shows that he does not pay his grocery bills nor his clothing bills, but that the record is silent as to the manner in which he takes care of his medical bills. In such a case the physician would not wish to extend credit, for it would be apparent that, if he does not pay his grocery or clothing bills, he will, naturally, not take care of his doctor bills. In other words, a party might pay one class of bills and not another, but if a party does not take care of his bills for the necessities of life, it is almost a foregone conclusion that he will not meet his medical bills.

Perhaps it might be well to explain how we have built up these records. It has been done by calling up different business houses and making inquiries as to how John Smith pays his accounts, and the replies of each credit manager are put in our records. These records are supplemented further by our Collection Department, as, for example, almost all of our members, and some people who are not members, turn over to us for collection many accounts, and records of all these delinquent accounts are placed in our permanent credit files, and show the name of the person owing the bill, the amount, and also the name of the concern or individual who turned in the claim for collection. As a further protection to our members, we publish, weekly, a bulletin which lists the names of all delinquent debtors, and this also gives our members warning of the names of people not meeting their obligations promptly. If the Boston Store

sees the name of one of their customers in our bulletin, they know at once that they had better do all they can to liquidate this account.

The question is, how would a similar bureau be applicable to the needs of, and of benefit to, the physicians. I am assuming that there are four classes of debtors: those who never can pay, and are classed as charity; those who are good pay; those who are slow pay; and those who can pay and will not, and who are sometimes referred to as 'dead beats' and 'skips'. From the first class of debtors there is no escape, as a certain amount of charity work will always have to be taken care of by the doctors, and the only benefit a credit rating bureau could be in cases of this kind would be to enable the doctor to find out whether or not any given case was a charity case. May I suggest, incidentally, that the charity cases should be divided equally among all the physicians, or be sent to special clinics.

How, then, could a credit rating bureau benefit physicians in the third and fourth cases? From your rating bureau you could find out whether or not the person was slow pay, and if he is, you could use your discretion about giving him service.

This brings us to the fourth class, or those who can pay and will not. This is really the class which has brought into existence credit rating bureaus, and it is the class we are all trying to eliminate. From your credit rating bureau you could find out if a party who came under this classification was running from one physician to another and not paying any of them. This could be done by centralizing your accounts for collection or by turning in to your credit bureau a list of delinquent accounts after they became sixty, or ninety, days old.

The success of any credit bureau that the physicians might organize, would depend to some extent, upon the kind of secretaries they employ in their offices. Most physicians are too busy to be bothered about keeping their books or collecting their accounts, and this work must be entrusted to some office person, usually a girl who has very little knowledge about running down 'dead beats' and 'skips'.

When most doctors call to see a patient, about all they know is that they went to see Smith at 1730 W. Monroe. They have no idea of his initials, and it is up to their office girl to supply the initials from the directory or telephone book. Most of these girls are too busy, or do not have sufficient knowledge as to how to use a directory service or a credit rating bureau in order to secure the desired information. The result

is that your first statement mailed out comes back, and, sooner or later, the account of Smith at 1730 W. Monroe finds its way to a collection agency. All of this trouble could be avoided if the physician had competent office help.

It appears to me that, when a patient comes into the office for treatment or advice, the girl in the office could get at least as much information as the credit manager of any business firm. She could get his full name, his correct address and his business connection. Very often this could all be done under the guise of getting a brief history of his ailment, and the patient himself would not need to know that this information was being gathered for credit purposes.

I wish to impress upon you that the success of any credit bureau that the doctors might organize, is going to depend to some extent upon the efficiency of their office help.

The report is often circulated that the claims of physicians are harder to collect than any kind of claim. During the time I have been manager of the Collection Department of the M. & M., I have found that quite the contrary is true, and that their claims are easier to collect than those turned in by mercantile establishments. After a good credit manager of a mercantile establishment gets through with a claim, there is not much left to do but to sue, provided you think suit advisable. In the case of physicians' claims, I have found that a certain percentage is turned over for collection that should never have been turned over, for the reason that, in the first place, the cases were charity. The debtors will never pay, for the reason that they are unable to do so. Some of the other claims they turn over need only the services of someone to secure the correct name and address of the patient.

If anyone wishes to ask me any questions I will be glad to explain to you in detail anything that I have not made clear.

I wish to thank you for your attention and the privilege of addressing you.

MEDICAL PROPAGANDA AND ETHICAL ADVERTISING

E. PAYNE PALMER, M. D.
Phoenix, Ariz.

(Before the Maricopa County (Ariz.) Medical Society, Phoenix, Feb. 6, 1928.)

The medical profession occupies a higher plane today than ever before in the history of the world. Educational requirements are greater than in any other profession except that of the Catholic priest and, since the higher educational requirements are the result of philanthropic work of some of our wealthy men and women, the public expects

and should demand more of the medical profession than ever before.

The laity are eager to get any information they can on matters pertaining to health and disease, and read with interest and profit well prepared articles on these subjects, or even go so far as to subscribe for medical journals in order to get the information which they desire. Several county medical societies have carried on medical educational programs during the past few years. On September 1, 1926, Dr. W. L. Brown, of El Paso, introduced in the El Paso Medical Society, a motion that they carry on a medical educational program, for a period of six months, under the direction of an expert advertising layman, the cost not to exceed \$1500, each member to be assessed \$10.00 to help cover the expenses, with permission to use a part of the savings of the secretary, if necessary. The motion was carried.

The American Society for the Control of Cancer, and other large organizations, have found it necessary to carry on campaigns through the press in order to get their message before the laity. The American Society for the Control of Cancer, up to January sixth of this year, in thirty-six states, one hundred eighty-four newspapers, with a combined circulation of 9,650,386, had published from one to sixteen articles on this subject.

I would suggest that the Maricopa County Medical Society launch a campaign through our local newspapers along the lines carried out by the El Paso County Medical Society, but with a few changes. I suggest that our campaign be carried on by articles written on medical subjects which should be of interest to the public, by members of the Society; that in the preparation of a medical article for the lay press, understandable non-technical words should be used; that the individual writing the article should sign it, and that an editing committee from the Maricopa County Medical Society pass on all such articles to be published as sponsored by the Maricopa County Medical Society. I believe that this would be more effectual than the medical educational campaign carried on by the El Paso County Medical Society.

A PROBABLE CASE OF ACUTE YELLOW ATROPHY

S. H. NEWMAN, M. D.
El Paso, Tex.

Presented to The El Paso Clinical and Pathological Society, Dec., 1927.

Female, age 27, white, single, interne City-County Hospital.

Family History: Mother, father, and one older brother living; no deaths. Stated that her family was one of "cardiacs."

Past History: Usual diseases of childhood; small thyroid enlargement, probably since puberty. Stated that for a number of years she had been subject to occasional spells of intense nausea and vomiting lasting two or three days. She started having such a spell in class in Tulane a year ago. The doctor who was lecturing took her down to his office, gave her a thorough examination and had an x-ray "G. I." series made. A kink in the second portion of the duodenum was thought to be made out and to this was attributed the vomiting spells. A gastro-enterostomy was proposed but refused. Says her mother had similar spells. Menstruation every month but usually delayed a few days. Menstruates for four or five days and has cramping throughout. Usually nauseated at this time.

Present Trouble: About September 19, 1927, the patient went on a picnic and ate heartily. That night had vomiting and diarrhea but next day felt well enough to climb Mt. Franklin. Complained the night after that she felt "all in." Since then has not felt as well as usual. Since September 27th she has been having a little "cold,"—a little rhinitis, little hoarseness, but no cough. October 1st she felt feverish, had general aching, and took to bed. Stated that her temperature was a fraction over 101 and that the next day it was 100. The third day felt better and temperature was normal. The fourth day (October 4th), however, she again had general aching, especially in legs, and she called in the attending physician. She was sitting up in bed and discussed her symptoms clearly. Complained of a little nausea and said her bowels had not moved for two days. Was somewhat hoarse. Temperature 100.5, pulse 88. Examination revealed nothing but a little epigastric soreness on deep pressure. No meteorism, no suggestion of rigidity, no splenic enlargement made out; nothing suggestive in liver area. Lungs apparently normal, as was heart. She stated that at one time, during one of her vomiting spells, some doctor had made out a friction rub in heart area but nothing like that could be distinguished. Tongue somewhat coated; small enlargement of right lobe of thyroid. No suggestion of jaundice at this time. She was advised to stay in bed, take an ounce of castor oil, and then some capsules, each containing acetyl-salicylic acid gr. iss, phenacetin gr. iss, caffeine citrate gr. i, and codein gr. $\frac{1}{8}$, every three hours till aching

and fever subsided. Diagnosis at this time was la grippe.

The next day she stated that she felt considerably better but that the castor oil had made her very sick the night before, that her bowels had moved several times and that, as a result, she felt very weak. Her temperature was a little subnormal, pulse about 70 and of good quality. Still had a little soreness in epigastrium. Had discontinued the capsules. Was afraid to eat, as she felt nauseated. No jaundice noticed.

That afternoon she started vomiting and that night was very sick. Dr. Werley was called on the phone and ordered a hypodermic of morphine and the atropine and strychnine every three hours. The next day (October 6th), she was seen by me again. Vomiting and nausea very severe, epigastric soreness pronounced, temperature 97.6, pulse 48, blood pressure, 112/60. Ordered everything discontinued by mouth and 5 per cent glucose and sodium bicarbonate per Murphy drip. Slight jaundice was noticed for the first time Saturday, October 8th. On this day (Saturday) she started menstruating; stated that she was not due for about a week. Up to the morning of October 9th she was perfectly conscious and had no signs of cerebral or meningeal irritation. The morning of the 9th, however, she became delirious and never recovered consciousness. At times she would go into a stupor and her breathing would become almost Cheyne-Stokes in character, at other times she would be wildly delirious, then again she would become rigid. Her pulse rate gradually increased to between 60 and 80 till the afternoon before she died when it increased rapidly to 120 and then to 130 just before she died. Her rectal temperature ran around 99.8 till a few hours before she died when it reached 103.2 per axilla. The night of the 9th she vomited a small amount of coffee-ground material and a few hours later a little bright red blood. Enemata were returned clear or with only a small amount of fecal matter. Her jaundice increased daily but never became markedly pronounced. Saturday, October 9th, for the first time it was noticed that her area of liver dullness was diminished and next day this absence was more pronounced,—only about an inch and a half below the upper border was dull, the rest was tympanitic. Up to the last the reflexes remained more or less normal and there was an absence of other neurological findings. She died at 2:45 a. m., October 11, 1927. She was attended by Dr. G. Werley as well as myself throughout her illness.

SPECIAL EXAMINATIONS

Oct. 7. Urine: brown, clear, alkaline, 1.035; albumin, sugar, bile, and casts all negative; few epithelial cells, no pus.

Blood: hemoglobin 95 per cent; R. B. C., 4,225,000; W. B. C., 13,000; polys. 75 per cent; small lymphos., 22 per cent; large lymphos., 2 per cent; transitionals, 1 per cent; coagulation time, 5 min.; bleeding time, 3½ min.

Oct. 10. Urine: alkaline, 1.015, albumen present, sugar none, bile present; microscopically, amorphous sediment.

Blood: W.B.C., 9,300; polys, 73 per cent; small monos, 25 per cent; large monos, 2 per cent; Wassermann negative; no spirochetes found; icterus index, 40; Von den Bergh positive, immediate.

Spinal fluid: Cell count 2; globulin, faint trace, copper reduced, Wassermann negative.

(Comment: On two occasions catheterized specimens of urine were obtained in sterile containers and sent to the laboratories with the request that special examinations be made for leucin and tyrosin crystals and that guinea-pig inoculation be done for the spirochetoides ictero-hemorrhagica. Some misunderstanding occurred and the specimens were discarded without these examinations being made.)

Dr. S. A. Schuster's Report:

Eyes: cornea clear, moist, no evidence of non-mobility of eyes, corneal reflex present. Lids: no paralyses nor pareses. Pupils react to light and accommodation, associated pupillary reflex present. Media clear. Fundi: disc normal, vessels normal. Nose: membranes slightly congested, some bloody crusts both sides. Ears: drums slightly retracted, otherwise normal. Throat: dry, slight congestion. Recommended x-ray of sinuses.

DIFFERENTIAL DIAGNOSIS

In the consideration of this case we at first did not realize its gravity. On the face of it, it was similar to cases we were seeing every day. From October 1st to October 6th it was, to all appearances, what we ordinarily term grippe or influenza,—the slight rhinitis, hoarseness, general aching, slight gastric disturbance, moderate rise of temperature, and comparatively slow pulse, with a decline of the temperature after three or four days, certainly pointed to that diagnosis. Its subsequent rapid progression, however, quickly showed us our error, unless the hypothesis is taken that she really did have grippe or influenza and that it served, by adding to a toxemia already present, to overload the system, and thus caused

the rapid progression that followed. Otherwise, this diagnosis can be eliminated.

Acidosis was considered when the intense vomiting started. But the failure of the symptoms to subside on resting the stomach and the giving of alkalies excluded that diagnosis.

An atypical typhoid was thought of, but the afebrile intermission of several days and the slight leucocytosis argued against it.

Syphilis, which is always thought of in obscure cases, was ruled out by the negative history and the negative Wassermanns.

Poisoning, either accidental or intentional, we thought could be excluded by the history and the progress of the case. For phosphorous poisoning, we did not have the intense violent burning pains in the abdomen, nor the purging, nor the characteristic breath odor, nor the necroses, nor the caries, nor the swollen gums usually seen in chronic cases. Arsenic also could be excluded by the absence of pain, profuse watery diarrhea, puffiness about the face, skin changes, etc.

Tumor of the brain was excluded by the absence of all neurological findings.

Also, absence of neurological findings and examination of the spinal fluid, ruled out meningoencephalitis.

Mechanical obstruction, as produced by a volvulus, intussusception, kink in the duodenum, or tumor in the abdomen, we thought unlikely because the abdomen was soft, showed no particular tenderness, except a little in the epigastrium; the bowels were open, and no mass could be felt; and the character of the vomitus was not indicative.

Appendicitis: there was no acute pain and no tenderness in the appendiceal area.

Pancreatitis: absence of intense pain which is usually characteristic, absence of fever, no distension nor tympanites in epigastrium, no palpable mass and small liver area dullness.

Yellow Fever: improbable source of infection; onset very mild and insidious instead of abrupt, with rigor and high fever, as would be expected in a case of yellow fever terminating fatally; no secondary rise in fever except for a few hours preceding death; epigastric distress not marked as usual in yellow fever; vomiting did not begin till after the fifth day, whereas, in yellow fever, it is present from the beginning; jaundice appeared on the eighth day and gradually increased but was never markedly pronounced, while in yellow fever there is ocular jaundice about the second day and jaundice of the skin by the second or third

day, and by the fifth day it is usually intense; small liver instead of an increase in size. Attributing the first five days of the illness to a separate disease entity, so as to conform the symptoms of the last six days to those of yellow fever as suggested by a New Orleans colleague, does not seem reasonable.

Under jaundice we would have to consider changes in or around the liver and the other form wholly independent of the liver. This latter, or hemolytic jaundice, we thought could be eliminated by the immediate positive von den Bergh, by the presence of bile in the urine, and by the absence of splenic enlargement.

This, then, brought us down to a consideration of the liver itself as the organ at fault. In speaking of jaundice (other than the hemolytic form) we ordinarily classify it in two types: obstructive and non-obstructive. But it is probable that these non-obstructive cases are, in reality, obstructive, and that the obstruction occurs, not in the larger ducts, but in the bile radicals within and around the hepatic lobules. This obstruction may be in the form of swollen epithelium, pigment granules, crystals of leucin and tyrosin, etc. Possibly, also, a disordered function of the polygonal hepatic cells, without any demonstrable obstruction in the bile radicals may produce a jaundice. So it is better, probably, to follow William Hunter's classification of obstructive and toxemic jaundice, or extrahepatic obstructive and intrahepatic jaundice. Under extrahepatic obstructive jaundice, then, we would have to consider:

First, obstruction by foreign bodies within the duct, as gallstones. This we could not rule out entirely, but the absence of the characteristic symptoms of gall-stone colic made it unlikely.

Second, obstruction caused by the duodenum or inflammation of the duct wall itself.

Third, obstruction by stricture or obliteration of the duct.

Fourth, obstruction by tumors closing the orifice of the duct or growing in its interior.

Fifth, obstruction by pressure on the duct from without, by enlarged glands, hepatic tumors, etc.

None of these causes of obstruction could be ruled out with an absolute degree of certainty, but the late appearance of the jaundice, its mildness, the absence of a palpable mass in the abdomen, and the rapid progression of the case to a fatal termination, led us to believe that there was an intense toxemia at work rather than a case of mechanical obstruction.

So then, in arriving at toxemic or intra-hepatic jaundice, we had three, and only three, very definite groups to consider—that due to poisons, which we have already considered; that occurring in specific fevers; and that occurring in obscure infective conditions.

The various specific fevers producing jaundice, as yellow fever, malaria, pyemia, typhoid, typhus, etc., we thought could be eliminated by the absence of fever, the short course of the disease, the blood picture, etc.

Under jaundice occurring in obscure infective conditions, we had to consider Weil's disease, acute yellow atrophy, and possibly syphilis. The latter has been discussed. So-called catarrhal jaundice and cirrhosis probably come under this classification also. Catarrhal jaundice, of course, was easily excluded by the rapidity and gravity of the case; although it has been suggested by some one that acute yellow atrophy may, in reality, be the exceptional case of catarrhal jaundice that does not terminate in recovery. In cirrhosis there would be a much longer course, enlargement of the liver, splenic enlargement, ascites, etc. Acute hepatitis, congestion of the liver, and amyloid degeneration need only to be mentioned to be dismissed.

The symptoms of Weil's disease, or acute infectious jaundice or spirochetosis icterohemorrhagicae, are divided into three stages by Oxford Medicine. "In the first stage the onset is rather abrupt, with chills and fever up to 102 or higher. About the third or fourth day the eyes become injected. Herpes, often hemorrhagic, appear on the lips in about 40 per cent of the cases. There may be bleeding from the nose, lungs, stomach, or bowels. Hemorrhage often precedes jaundice. Jaundice usually appears about the fourth day but may come on as late as the seventh. Headaches, muscular pains, and albuminuria are often present. Glands in the axillae and groins are often enlarged. This stage usually lasts till the sixth or seventh day.

"The second stage is called the jaundice stage and lasts until the twelfth or thirteenth day. In most cases the patient presents a peculiar greenish hue. Pulse is slow in relation to the temperature, which usually remains fairly high. Death usually occurs in this stage and usually takes place between the eighth and sixteenth day of illness. Throughout this stage there are a sense of general weakness, nervous symptoms, and cardiac depression. The temperature subsides by rapid lysis, usually between the tenth and fourteenth day.

"The third stage begins with the thir-

teenth or fourteenth day and lasts a week or more. The jaundice gradually disappears and convalescence sets in. Sometimes there is a secondary rise in temperature in this stage, lasting a week or more, but death seldom occurs during this secondary fever. The spirochetes are found in the blood up to the fourth day. The organisms are excreted in the urine, however, after they disappear from the blood and injections into guinea-pigs produces typical infection.

"In the morbid anatomy, the chief lesions may not necessarily be in the liver but in the duodenum. There may be cases without jaundice. The lesions in the liver may vary from scarcely perceptible changes to advanced conditions resembling those in yellow atrophy. Complete destruction of the liver cells may be observed, only interstitial tissue remaining. In severe cases the liver is diminished in size and its capsule wrinkled. Spirochetes may be seen in smears from the cut surface of the liver." (Extracted from Oxford Medicine.)

Acute yellow atrophy is rare; commonest between 20 and 30, more often in women on account of pregnancy. There are two stages. After several days of malaise there will be jaundice, which is usually regarded as benign catarrhal jaundice. This stage usually lasts for five or six days but may last for weeks.

"The second stage comes on suddenly with the appearance of grave symptoms pointing to indication of the nervous system and general toxemia. Severe headaches, restlessness, twitching, delirium, screaming, convulsions, urgent vomiting, etc. The jaundice varies in degree and in rare instances is said to be absent. At the onset the liver may be enlarged, after this the area of hepatic dullness rapidly diminishes." This is due both to an increasing atrophy of the liver and also to its becoming flabby and dropping away from the abdominal wall, and the intestines taking its place. More than half the cases terminate fatally within two weeks, death being preceded by coma and stertorous breathing and incontinence. The disease is practically always fatal although Oxford Medicine speaks of some few sub-acute cases recovering.

At autopsy the liver is usually found greatly reduced in size and so flabby that it can be bent on itself; the capsule is usually wrinkled. The liver substance is of a dirty yellow but in other cases a red hepatic substance is seen. This red substance constitutes an advanced stage of degeneration. In the majority of cases ecchymoses will be seen in the serous membranes. Etc. (Nothnagel's Encyclopedia.)

CONCLUSIONS

In view of all the foregoing, it seemed to us that we were dealing with either Weil's Disease or Acute Yellow Atrophy. The more severe course of the illness, the practical absence of fever, and the apparent absence of a source of infection, made us conclude that this was a case of acute yellow atrophy. However, due to the unfortunate circumstance of the failure to make guinea pig inoculations and the failure to get a definite report as to the presence or absence of leucin and tyrosin crystals in the urine—practically always found in atrophy—we cannot entirely exclude Weil's disease.

REPORT OF POSTMORTEM EXAMINATION

Body of J. G., age 27, requested by Dr. G. Werley, County Hospital case. Postmortem held on October 11, 1927.

Body is that of a small, well-built, fairly well-nourished female, marked with jaundice.

Examination showed very little except small, flabby liver, but the body had been trocarred and embalmed before examining and the liver had been punctured several times, allowing blood to drain out of it.

There were numerous ecchymoses, most marked and largest in the peritoneum and mesentery, but there were also some about the arch of the aorta and in the epicardium.

The liver was soft, and, on section, of a pale, yellowish, rather homogeneous appearance. So far as gross lesions were concerned, the other organs appeared normal.

Microscopic examination from section of the liver shows very marked destruction of liver substance around the central vein. There are also some areas of round cell infiltration around the periportal spaces.

Diagnosis: Acute toxic destruction of the liver substance, possibly acute yellow atrophy.

THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS

R. B. HOMAN, M. D.,
El Paso, Texas

In arriving at a diagnosis of tuberculosis in its early stage, one should carefully consider—

1. The family history.
2. The personal history.
3. The symptoms.
4. The physical signs.
5. The laboratory tests.
6. The tuberculin reaction.
7. The x-ray findings.

1. The family history should clear up the possibility of exposure, during childhood, to an individual with an open lesion of tuberculosis, whether it be near relative,

servant, boarder, or other occupant of the home, or school teacher, playmates, or other persons with whom the child might be intimately associated. This is important because of the well-known fact that young children are prone to infection, with actual development of the disease later in life.

2. In the personal history, one gets a knowledge of the early childhood, as to resistance to the ordinary diseases common to that age, with the size and development of the child, compared to other children in the family, and, later, as to history of other diseases, such as typhoid fever, appendicitis, tonsillitis, influenza and rectal abscess. Not infrequently a diagnosis of typhoid fever is made, when the condition is really one of toxemia from a subacute tuberculous infection. Many attacks of appendicitis, and nearly all of rectal abscess, are tuberculous, and a history of either should suggest the possibility of that disease.

3. A careful consideration of symptoms is important. Fatigue is one of the earliest as well as one of the most important. It is due to the effect of toxins of tuberculosis on the muscular and nervous systems. The same is true of nervous instability and gastric disturbances, both of which are fairly constant as early indications of the disease. Pleurisy in the past is important, since we know that 90 per cent of pleurisies are of tuberculous origin. Cough and spitting of blood are important. Any cough which persists as long as two or three weeks usually means something more serious than an ordinary cold or bronchitis and should call for careful consideration. Spitting of blood from the lung is almost always due to tuberculosis. A prolonged daily rise of temperature, especially if it is low in the forenoon and rises to 99-2/5 or thereabouts in the afternoon, is more often due to tuberculosis than to any other disease. Hoarseness is a fairly constant symptom, not always due, in the early stage, to an infection in the larynx, but to pressure on the laryngeal nerve due to congestion at the apex of the lung. Loss of weight and the presence of enlarged lymph glands in the neck are both suggestive symptoms, as is also low blood pressure.

4. In the study of the physical signs of early tuberculosis of the lung, we should make use of the time-honored methods so well known to all students of diagnosis: viz., inspection, palpation, percussion, and auscultation. Before beginning the examination of the chest, all clothing should be removed to the waist line. Much can be learned by inspection. The general appearance of the patient as to flesh, color of skin, general

nutrition, condition of nails, shape of chest, enlarged superficial veins on one side of chest, degree and regularity of expansion, etc. Early in the disease, the upper part of the chest, on the affected side, almost always shows a slightly more marked flatness than is shown on the other and there is practically always a perceptible tardiness in motion on the affected side. Palpation affords a means of determining enlargement of the lymph glands in the neck and axilla, of estimating the degree of chest expansion, of determining the condition of the skin as to dryness, and of determining the increase or decrease of vocal fremitus, an increase indicating a degree of consolidation, and a decrease suggesting the presence of pleural effusion or a markedly thickened pleura. Palpation may also reveal the increased sensitiveness of the muscles, and the increased reflexes on the affected side of the chest—signs which are fairly constant and quite suggestive.

Percussion will usually reveal a slight dullness on the affected side of the chest in a very early stage of the disease, due to the congestion produced by the acuteness of the infection.

Auscultation really gives one more reliable information than any other method. The breath sounds are harsher over the affected area, the degree of harshness, or roughness, depending upon the extent to which changes have taken place in the lung. The expiratory sound is usually prolonged and often interrupted, or cogwheel, in type. The voice sounds, both natural and whispered, are increased in intensity because of the congestion of the tissues in the diseased area. The increase in whispered voice is one of the most constant, and yet one of the most delicate and dependable of all the physical signs. Moist rales are heard fairly early, as a rule. At first, these are fine and often cannot be heard on ordinary deep breathing but are brought out by forced expiration followed by slight cough.

5. Laboratory tests. Tubercle bacilli cannot always be demonstrated in the early stage of tuberculosis. Frequently, however, the mistake is made of having a single specimen examined and accepting a negative finding as sufficient evidence to settle the diagnosis. The fact is that a negative sputum should never be allowed to determine the diagnosis, for it has been definitely shown that guinea pigs will develop tuberculosis from being inoculated with sputum from patients where numerous microscopic examinations failed to show the bacilli. Most certainly, the finding of the bacillus is important, and if it is found, the diagno-

sis is settled, and one should not fail to examine many specimens before giving a negative report. The sputum from every patient who has a cough which persists for more than ten days should be carefully examined microscopically for tubercle bacilli.

The complement fixation test has not yet been sufficiently simplified and standardized to become generally used, but it is a valuable test, and, in time, no doubt will approach in value the Wassermann test for syphilis.

6. Tuberculin reactions are of great value in diagnosis. Notwithstanding the fact that patients with old, healed lesions, anywhere in the body, will give a positive reaction to the tuberculin test, the experienced and closely observing diagnostician can secure very positive assistance by its use. The fact that in the patient with active tuberculosis the reaction to tuberculin comes earlier and is usually more marked than in the one with a quiescent lesion makes this test of value.

7. The x-ray is undoubtedly of inestimable value. In the early stage of tuberculosis, the changes are very slight; therefore, not so much can be shown by radiograms, but there is most always a peribronchial thickening, and where this extends to the small tubes running upward toward the apex, it is strong evidence of a tuberculous infection, and where, in addition, the tissues are infiltrated sufficiently to give even a light generalized shadow in any area, the evidence is further strengthened. Certainly, carefully taken and developed stereoscopic films do bring out lesions which cannot be very definitely localized with the stethoscope.

It is rare that a diagnosis of early pulmonary tuberculosis can be made from any one, or even a small group of symptoms or physical signs, but by correlating the evidence which may be obtained by following the brief outline which we have described, one can make a diagnosis in a reasonably early stage of the disease with considerable accuracy.

ELECTIVE INTERFERENCE IN OBSTETRICAL PRACTICE

HARRY LEIGH, M. D.,
El Paso, Texas

Read before the El Paso County Medical Society, January 23, 1928.

Elective interference as practiced in obstetrics is the deliberate termination of pregnancy, or the shortening of labor. The practice of obstetrics has been called an art, but this appellation is only partly correct. The conduct of labor must embody the scientific principles of surgical technic, but maneuvers become safest for the one who

has adequate training, experience and dexterity. What may be sound obstetrical practice in one surrounding, or with one physician, frequently becomes obsolete or dangerously conservative when applied to similar cases in a more favorable environment. The only constant is a strict aseptic technic in the conduct of labor. The first variable usually considered is the patient; i. e., the powers, the passages, and the passengers. A second variable is the physician himself. He must properly weigh and evaluate evidence that would justify elective interference which would be beneficial to the mother or to the baby. The deciding factor is often the operator's courage, ability, and skill.

Dr. Lee considers labor essentially pathological, even in uncomplicated cases. The ideal to be attained is that we benefit both patients and never one at the needless expense of the other. Some of the obstetrical conditions requiring good management and often calling for elective interference are: the common practice of sacrificing a baby to save a perineal repair; an exhausted mother without the benefit of an analgesia; a post-mature baby because nature takes care of these things; an eclampsia because one likes to wait or does not know how to use bags; an occult prolapse of the cord and still births because the heart tones have never been investigated; dead babies from many constitutional conditions maternal in origin. The common practice of inducing labor for golf games, office hours appointments, by forceps, etc., is not considered under honest indications for elective interference. Likewise, strictly emergency obstetrics cannot be classed as elective. I am deliberately directing this discussion into that hotly discussed zone of relative indications.

A consideration of conditions prior to, and during, labor, that occasionally benefit by interference are herewith enumerated:

1. Anomalies of the powers—

A. Uterine anomalies

1. False pains over a long period, when due or post-mature, with (a) continued dilatation or open cervix following long continued false pains; (b) false pains not strengthened by pituitrin.

2. Weak pains with (a) inertia uteri known to have occurred at previous labors; (b) atonia uteri-known; (c) uterine atony.

Effects: long first stage; danger of sepsis from prolonged stage of dilation. May be anticipated in cases of prolonged labor, tuberculosis, toxic goitre, anemia, infection of uterus and of the adenexa,

infantile uterus, fibroids, tumors, peritoneal adhesions, pendulous belly after many babies, metritis, old primiparity, over-distended uterus from twins, hydramnios, and abnormal positions.

B. Anomalies of the abdominal powers

1. Inflammation of abdominal walls.
2. Hernias.
3. Weakness of powers due to heart or pulmonary disease.
4. Abdominal tumors.
5. Kyphoscoliosis.

C. Spasm cervix,—history of.

D. Precipitate labors,—history of.

2. Anomalies of the passengers.

A. Unusual presentations — occipital, posterior, face, transverse, breech.

B. Unusual attitudes—deflexion.

C. Unusual positions—persistent occipital posterior.

3. Anomalies of the passages.

A. Rigidity of cervix.

1. Scars, post-operative, from cautery and caustic, or infections.
2. Infection and lues.
3. Conglutinatio orificii externi.
4. Old primipara.

B. Vaginal stenosis.

C. Rigid pelvic floor.

D. Infantile genitalia.

E. Labor in old primipara.

F. Dystocia due to transitory obstacles, as (a) bladder distention; (b) old inflammatory strictures and cellulitis.

G. Anomalies of the bony pelvis.

Litzmann's Classification—

1. Pelves with normal shape, but either too large or too small:

Pelves aequabiliter justo major and justo minor.

2. Pelves with abnormal shape:

(a) Flat pelvis.

1. Simple.
2. Rachitic.
3. Generally contracted, flat pelvis.
- (b) The transversely contracted, flat pelvis.

(c) Irregularly contracted pelvis.

1. The scoliotic.
2. The coxalgic.
3. Amputation.
4. Dislocation of femur.
5. Asymmetric sacrum, as the Naegelic pelvis, hip tuberculosis, etc.

(d) Crushed together pelves, the osteomalacic and pseudo-osteomalacic pelves.

This paper is in no way belittling the artificial aids that are so frequently used to

facilitate delivery. For years abdominal binders, external or combined maneuvers, posture and analgesia have had their important roles to play and still do. Such aids should continue to be taught and emphasized more and more. If elective interference cannot be of aid to either the mother or the offspring, such procedure becomes meddlesome.

Certain cases and conditions stand out as particularly favorable to elective interference:

(1) Definite postmaturity.

(2) Prolonged false pains at term or postmature. These exhaust the mother and lessen the likelihood of successful lactation. This is particularly true during the hot months with restless nights and the gradual exhaustion that follows.

(3) Uterine myomata should always be regarded with suspicion. The pains are usually ineffective and the maternal suffering is entirely out of proportion to the results. Rupture is to be feared. Dilation is slow and frequently retarded. Expulsion is usually slow, painful and dangerous. Bags for dilation, version and extraction, or judicious use of forceps, may often be indicated.

(4) Patients debilitated from toxic goitre, anemias, pyelitis, and tuberculosis frequently require aid and early termination.

(5) Marked distention of the uterus; i.e., hydramnios, twins, malpositioins, multiparity with pronounced uterine weakening with a pendulous abdomen, not infrequently demand careful supervision with interference. Many babies are lost from occult cord prolapse and immaturity; many mothers succumb to ruptured uteri or ablatio placentia.

(6) Impending eclampsia with a viable baby usually does not justify prolonged medical care.

(7) Malpositions and presentations in multipara often needlessly progress hours. Dr. Potter's management is gradually gaining adherents in these cases among the conservative teachers of obstetrics.

(8) Dilation should be aided with sedatives, or narcotics, and hydrostatic bags, if needlessly delayed.

(9) Needless risks in the second stage should be avoided.

(10) Pelvimetry and a thorough obstetrical history should be pre-requisite to all obstetrical cases. Remember that very large pelvises, as well as the small or asymmetrical, are due for their share of complications.

The ultimate test is whether the risk of infection offsets the danger to the mother and baby.

There is an urgent and universal need of standard forms for the accurate recording

of the medical and surgical history of obstetrical patients, as well as the measurements, progress, and physical examinations. The forms furnished to the physicians at a nominal cost by the Children's Bureau of the U. S. Department of Labor have been very satisfactory for my personal use.

The choice of the method of induction must be governed by the urgency of the case and the surroundings. The simpler the method and the less manipulation, the more preferable. Castor oil and quinine, hydrostatic bags, stripping the membranes, are all of service at times. Pituitin is too dangerous a drug to be used needlessly.

The methods used to aid the termination of the second stage again must fit the conditions and the indications present. It is to be understood that the aids to the art are to be considered first, if possible. Intervention may vary from a simple outlet forceps delivery to version or actually cesarean section. Two patients must always be considered and the welfare of both should be the motive for elective interference.

THE USE OF IODINE IN THE TREATMENT OF ENLARGEMENTS OF THE THYROID GLAND

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Read before the El Paso County Medical Society, Oct. 3, 1927.

The incidence of goitre among native-born El Pasoans is low; that also applies to the surrounding territory. The exact rate has not been checked. Most cases seen here have come from other parts of the United States or Mexico and bring the pathology along with them. The type of enlargement most often encountered varies and is more dependent on the prevalent type at the place of former residence.

In certain areas, goiter is so prevalent as to assume rather alarming health and economic proportions. Marine showed that ninety per cent of the Cleveland street dogs reaching the laboratory had abnormal glands. The sheep industry of Michigan was an impossibility until it was accidentally discovered that iodine-bearing unrefined rock salt and bitter deep-well water prevented the birth of dead and immature lambs.

The usual clinically normal thyroid in the adult weighs from twenty-five to fifty grams, averaging forty grams, and usually being one-third heavier in females than in males. The gland constitutes about one eight-hundredth of the body weight in infants, whereas the proportion is one to eighteen hundred in adults. The usual thy-

roid weighing less than fifty grams is, if smooth, palpated with difficulty, even bimanually. The average gland exceeding that figure is easily palpable and is termed a goiter by both the layman and the physician.

The thyroid, apparently, has two known functions (1) The formation and storage of colloid in the vesicles, and (2) The formation and delivery, on proper gradual stimulation, of thyroxin, a dynamic catalytic agent, to the tissues of the body as a whole by the way of the blood stream.

Thyroxin was first discovered by Kendall in 1914. It is a complex acid (4.5.6. tri-hydro, 4.5.6. tri-iodo, 2 oxy-beta indopropionic acid) bearing sixty per cent, by weight, of iodine. There are fourteen milligrams in the average human body.

Fundamentally, the recognition and classification of goiter is a simple matter. Especially would this be true in practice, were it not for the frequent admixture of any two or more types in the same case. Another complication is the human factor, with the marked variance of individual reaction to a given stimulant or environment. Unfortunately for the sake of both the patient and the physician, much confusion and misinformation exist among those who have not the inclination or the ability to sift the wealth of present-day literature available.

The simplest, and almost universally accepted, classification used by those interested in the subject is that suggested by H. S. Plummer. The pure types, other than thyroiditis and malignancies, are:

- (1) diffuse colloid,
- (2) diffuse hypertrophic,
- (3) adenomatous.

In normal persons there is a balance between the rate of production of colloid and thyroxin in response to stimulation as against the needs of the body. Any condition in which there is an upset of this balance leads to physiological disorders due either to a hypo- or a hyperabundance of thyroxin. Physical changes also take place in the gland as an expression of its effort to react to the increased stimulation. This latter change forms one of the above three pure types named by Plummer, or any possible combination thereof.

Diffuse Colloid is characterized physiologically by an increase of colloid and an inability to deliver thyroxin. Iodine given alone does not affect the size or the basal rate to any great extent, as the "lag" in activity is not overcome. Thyroxin or dessicated thyroid will reduce the gland in a short time, only to recur when it is discontinued. Iodine given when the gland is reduced by thy-

roxin or its equivalent, will prevent the recurrence of over retention of colloid and will cause the establishment of a normal metabolic rate. Iodine given to small children prevents the development of the above type even though they live in endemic goiter areas.

Diffuse Hypertrophic (exophthalmic goiter) presents two factors; one, the simple hyperthyroidism seen in toxic adenomata with all the clinical manifestations thereof. In addition there are often exophthalmos, nail changes, and a characteristic psychic state so easy to diagnose that he who runs may read.

The first response is regarded as a reaction to an over-production of thyroxin over a period of time. The latter is believed to be due to a response to an altered or quantitatively incomplete thyroxin elaborated by an overstimulated gland, a process similar to hurried factory products during a great national crisis. This latter substance seems to have a far greater effect for derangement of bodily functions and balance than a much greater amount of normal thyroxin. Its dynamic potentialities seem to be greater, also, as is evidenced by a substantial lowering of basal rate by a short period of iodine therapy.

Iodine given in sufficient dosage and by the proper route, varying according to the response and physical condition of the patient, has revolutionized all previous knowledge of the physiology and treatment of exophthalmic goiter. Iodine overcomes only those reactions produced by an incomplete thyroxin molecule and reduces the patient to the same physiological responses seen in toxic adenomata. Hence, the necessity for surgery after the basal rate has reached a rather fixed constant, to remove the excess of perfectly good functioning gland. It has been shown that the parenchymatous hypertrophy disappears after the above line of combined treatment and the histological appearance of the gland again becomes normal.

Practically all cases of exophthalmic goiter must have iodine for a varying period of time post-operatively also, at least until the afore mentioned regressive changes take place. Even then there may be necessity of a secondary or tertiary operation in a small percentage of cases, not because the incomplete thyroxin cannot be neutralized but because there is still too much complete thyroxin. The gland also has considerable regenerative power, as is well known.

Adenomata are regarded as being of two anatomical kinds, true adenoma (encapsulated) and adenomatosis (unencapsulated).

Physiologically, they are identical. The causation of adenomata is none too fully understood, but it is most likely one of incomplete differentiation in regenerating vesicles in response to stimuli for thyroxin. Hyperthyroidism in a pure adenomatous goiter in patients under forty years of age, is not very common, and is only rarely seen in those less than thirty, unless it has been incited by ill-advised iodine therapy. Once started, the hyperthyroidism will continue unabated for years. Toxicity from adenomata begins spontaneously, usually after the age of forty at least, and reacts in all ways similar to prolonged over-dosage of thyroxin. This being the condition, relief of the hyperthyroidism is obtained by a subtotal resection of the gland. Iodine has no place in the treatment of adenomatous goiters, with two exceptions. First, it is good judgment to give small controlling doses in mixed cases, in young persons where diffuse colloid is the predominating feature, and again for a few days preoperative in cases of toxic adenomata in which there is a possibility of extra- or intramural parenchymatous hypertrophy. These latter patients often go into an exophthalmic goiter crisis that was formerly hard to explain and often anticipated with a sense of resignation.

That iodine was beneficial in certain types of goiter, has been known for a long time. The credit for explaining the rationale of its action, and the standardization of a dosage for a given individual, again belongs to H. S. Plummer of the Mayo Clinic.

In cases of thyroiditis coming on unassociated with, or as a post-operative complication of, goiter surgery, much relief of gland pain and hyperpyrexia are often obtained by the use of iodine. The remaining damaged and undamaged functioning cells of the vesicles are not so over-stimulated as in trying to extract iodine from an iodine depleted system.

On the other hand, the drug has no place in the treatment of frank cases of malignancy. Carcinoma in the presence of exophthalmic goiter is a great clinical rarity; it nearly always occurs in old neglected adenomata whether they are toxic or not, and is usually diagnosed conclusively by the careful tissue pathologist. In such cases iodine only adds fuel to the flame.

In thyroid dyscrasias of organic and functional origin—namely, cretinism, myxedema (idopathic), post-thyroiditis or post-operative—and those low basal rate cases without myxedema, iodine has little or no place in the plan of treatment. On the other hand, thyroxin, or its equivalent in dessicat-

ed thyroid, is an all essential and is quite specific in these cases.

Summing up, it can be seen that iodine is a valuable and almost indispensable drug. Especially is this true in the prevention of early goiter which is the result of a response of the gland to overstimulation caused by the urgent need of thyroxin in all bodily tissues. Equally as valuable is its action in cases of pure diffuse colloid and hypertrophic goiters and their various combinations as seen in practical experience.

It will be seen that the indiscriminate use of iodine in domestic salt and drinking water is harmful, in certain adult cases actually dangerous. Here in El Paso it is not needed, in goitrous areas it should be confined to the drinking water for the children only, and certainly not for the teachers of the primary and secondary schools.

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YAVAPAI COUNTY MEDICAL SOCIETY CASE DISCUSSION

I. D. LOEWY, M. D.,

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BAYARD SULLIVAN, M. D.,

Fort Whipple, Ariz.

(Discussion by Group 3, Yavapai County Medical Society, at regular meeting held at the Yavapai Club, January 24, 1928. Case discussed was No. 13181 of the Massachusetts General Hospital, Boston Med. & Surg. Jour., May 5, 1927.)

CASE HISTORY

An American machinist sixty-one years old entered the hospital for the first time January 15 complaining of sore distressing pain in the "stomach."

Beginning six months before admission the patient had occasional intermittent epigastric discomfort, especially after meals, localized to one small spot just below his sternum. When it became constant he was aware of a considerable increase in gaseous eructations and of a sour taste in his mouth. The discomfort was aggravated half an hour after eating and was relieved by the belching of gas and by soda. For two months he had much more gas than previously. He had irritating cough, hoarseness, and a pain in the right side of the chest on deep inspiration or on lying on the right side. These with the epigastric pain disturbed his sleep. For five weeks the sensation had been painful. It did not radiate, although he had an occasional darting twinge in the upper abdomen. For a month he had not been well enough to work. For three weeks the discomfort and pain had been generalized throughout his upper abdomen down to the level of the umbilicus. He had felt increasingly exhausted. Two weeks before admission a physician found on palpation a very painful spot and also discovered a hernia. The present symptoms were aggravated by eating and relieved by soda. During the past six months he had lost 14 pounds, most of it during the past two months because of dieting. The day before admission he vomited, for the first time, food and dark material.

His father died at ninety-one of bladder trouble, and also had cancer (?) of the stomach. One grandmother died of carcinoma of the breast at

ninety-six, one brother of "tumor of the brain." The patient was always ill as a boy with colds and fevers. At ten he was ill in bed three months with "typhoid pneumonia." At twelve or thirteen he was in bed twice, each time for about a month, with "lung fever," and was given up by the doctors. At forty-three he was ill six weeks in the winter with bronchopneumonia and asthma. Every winter since that time he had more or less cough, sputum and wheezing, even now raising half a cupful of sputum a day. At fifty-five he had frequent night sweats for a year. At fifty-nine he had another attack of the respiratory trouble and got no relief until he went to the mountains. Nevertheless from boyhood until the present illness he had considered himself strong and healthy. For forty years he had had hemorrhoids. For years he had taken bromoquinine for cough and lung trouble and a weekly teaspoonful of sodium phosphate as a cathartic. Two years before admission he had nosebleed for an hour. For a year he had had slight incontinence of urine and much dribbling after micturition. He denied venereal disease. Twenty-three years before admission he weighed 265 pounds, his best weight, two years ago 214 pounds, at present 222½ pounds.

Clinical examinations showed a very obese man in no discomfort. The skin showed several pedunculated fibromata and pigmented nevi. Teeth carious. Marked pyorrhea. Cervical glands slightly enlarged. Marked barrel chest. Lungs slightly hyperresonant. Breath sounds slightly high pitched. Inspiratory crackles over both lower chests posteriorly, probably muscle sounds. Heart slightly if at all enlarged. Sounds of fair quality. Pulses of fair volume and tension. Blood pressure 130/85. Abdomen very obese, slightly tender in the epigastrium. Small masses of areolar tissue in the abdominal wall. Umbilical ring slightly enlarged. Long external hemorrhoids. Prostate moderately tender. Pupils and knee-jerks normal. Ankle-jerks sluggish.

Urine normal in amount, specific gravity 1.012 to 1.018, one to three leucocytes per high power field at two of three sediment examinations, one red blood cell at one, residual urine 25 cubic centimeters; culture, no growth. Renal function 25 to 50 per cent. Blood: 9,850 leucocytes, hemoglobin 75 per cent, reds 4,496,000, slight achromia. Wassermann negative. Non-protein nitrogen 30 milligrams. Fasting contents of the stomach 22 cubic centimeters of dirty brownish material, no free hydrochloric acid, total acid 20 per cent, guaiac very strongly positive. Test meal 60 cubic centimeters of slightly turbid fluid with 80 per cent dirty looking sediment no mucus, no free hydrochloric acid, total acidity 23 acid per cent, guaiac strongly positive. Microscopic examination of both showed yeast, starch, leucocytes, fat and bacteria.

X-ray plates which were not entirely satisfactory showed questionable pathology of the gall-bladder. Plates of the teeth suggested pyorrhea and a probable root abscess. Examination with barium showed the stomach high, fixed, of the hypotonic type, with sluggish peristalsis. Tender points were absent. There was a large annular filling defect involving the antrum and the pyloric end. There was a six hour residue of about one-third of the meal. The first portion of the duodenum was not seen. The head of the column had reached the cecum.

In view of the patient's weight, appearance and the x-ray findings a surgical consultant agreed with the medical men that operation was inadvisable.

January 21 the patient was discharged.

After leaving the hospital his symptoms became steadily worse. His diet consisted chiefly of a little malted milk and soup. He was unable to retain any food more than an hour, and often vomit

ed within a half hour. The vomitus consisted of about half a cupful of partly digested slimy greenish very bitter material, never blood tinged or like coffee grounds. With the vomiting there was some nausea and gas. He had constant dull aching pain localized to the region about the umbilicus but once in a while radiating to the sides and the back, severe enough to keep him awake at night until relieved by suppositories. He had used these every night for several weeks. His bowels were very constipated. For the week before readmission he had been too ill to take an enema and for three days had had no stool.

March 5 he reentered the hospital, looking old, anemic, sick and weary. Clinical examination was as before except that there were palpable supraclavicular glands on the left. Chest expansion was poor. Red count and hemoglobin normal.

The patient was able to take very little by mouth without vomiting. Fluids were maintained by rectal taps. March 9 he appeared much worse. A surgical consultant reported, "... Considering the nodules at the umbilicus, nodules in the liver, weight and general condition I advise against any interference." March 11 the patient was in a critical condition, with mucus in the throat and such marked difficulty with respiration that he had to sit up absolutely straight. The temperature rose to 100.4°, the pulse to 122 the respiratory rate to 34. March 12 he died.

DISCUSSION

DR. I. D. LOEWY

This case offers, for differential diagnosis, certain lung conditions and certain abdominal conditions. With reference to the lung we have cough, hoarseness, pain in the right side of the chest on deep inspiration, or on lying upon the right side.

The abdominal conditions that attract our attention concentrate themselves principally on the stomach, as epigastric discomfort, pain, gas, sour taste in the mouth, generalized pains throughout the upper abdomen, tender spot on palpation. The gastric contents showed no free hydrochloric acid, with guaiac very strongly positive on two examinations. Microscopic examinations show considerable retardation in emptying the stomach, and fermentation. X-ray of the stomach shows annular filling defect involving the antrum and pyloric end, and a six-hour residue.

An elaborate differential diagnosis of the chest condition need not be gone into. My successor will give you the diagnoses referable to the chest.

The above mentioned gastric and abdominal symptoms coupled with the nodules in the liver and at the umbilicus in a man 61 years old, immediately invites our attention to the most common condition that would cause this symptom complex, viz., cancer.

Cancer is a general term of great antiquity used by the ancients. At the present time this general term is still used to include all malignant tumors, comprising, therefore, the two main forms of malignant neoplasm, carcinoma and sarcoma, although

some authorities still prefer to call a carcinoma cancer, making a separate classification out of sarcoma. The cause of cancer is still in doubt.

The most important part of our differential diagnosis in this patient would be an endeavor to locate the primary lesion. This patient had symptoms that would point toward some changes in the prostate gland. The prostate gland is more often the source of a primary lesion than is usually discovered antemortem. This is especially true in cases where there are, as we believe, considerable metastases into the liver.

However, this is not absolute, as the x-ray, gastric analyses, tender point and previous stomach disability would indicate that we have here in the pyloric end of the stomach the original focus of dissemination. There is no doubt that many foci of metastasis will be found throughout the abdomen and perhaps in the base of the right lung, although a considerably enlarged liver, infiltrated with cancer could cause the findings at the right base.

A hypernephroma is mentioned, but the lack of blood in the urine and other symptoms, including metastases to the bones rules this out. Sarcoma is ruled out, principally because epithelial tumors predominate in the abdomen.

CLOSING DISCUSSION

DR. BAYARD SULLIVAN

In closing this discussion for Group No. 3, I wish to say that the symptoms of this case as presented by my colleagues point very strongly to some disease of the stomach, most likely a malignant condition, a carcinoma located near the pyloric end and resulting in obstruction of the stomach in the later stages.

We wish to call attention to the leading points in the history as given to us, which led to the diagnosis as will be given at the end.

1. A man, 61 years old, with a family history of cancer, enters the hospital complaining of a sore distressing pain in the stomach which began six months previously, with pain localized to one small spot just below the sternum. At first, pain was intermittent and coming on after meals, later was continuous. Pain was relieved by use of soda, but aggravated by eating, which leads us to believe that the cancerous condition was preceded by a gastric ulcer, which has been found to occur in a percentage of cases varying from 15 to 57, according to different authorities.

2. Fasting contents of the stomach show 22 c.c. of dirty brownish material; no free

Hcl; total acid, 20; and guaiac test strongly positive. Test meal shows 60 c. c. of turbid fluid with dirty looking sediment, no mucus, no free Hcl; total acidity 23. Guaiac test strongly positive. Microscopic examination of both specimens showed yeast, starch, leucocytes, fat and bacteria.

3. X-ray examination with barium showed the stomach to be high, fixed, and of the hypotonic type, with sluggish peristalsis. There was a large annular filling defect involving the antrum and the pyloric end of the stomach. There was a six hour residue of about one-third of the meal, indicating obstruction.

Thus we have a typical, clear cut case of cancer of the stomach, with the exception of the blood picture (hbg. 75 per cent, red blood cells 4,496,000) indicating no anemia. Also there is very little loss of weight (only 14 lbs. in a period of six months) which we find is marked in a majority of cases. The man is obese and from inspection appears to be in no discomfort, which is an exception.

Taking into consideration that the surgical consultant agreed with the medical men that operation was inadvisable, leads us to believe that this was a case of inoperable cancer of the stomach, with metastases to other organs having taken place already.

Then considering that the man, after remaining in the hospital about one week, left with the symptoms gradually growing worse. Diet, which was liquid, was never retained more than one hour, frequently being vomited in one-half hour and was partly digested, slimy, greenish, bitter material. Constant dull reavy aching pain located about the umbilicus. Bowels were constipated. After being out of the hospital about two weeks he returns looking old, anemic, and very sick. Clinical examination was as before, except there were palpable supraclavicular glands on the left which are very strongly suggestive of cancer of the stomach, when taken into consideration with the palpable nodules of the liver.

After considering all the symptoms of the case, we give the following as our diagnoses:

1. Cancer of the stomach, pyloric end, with metastases to other organs.
2. Hypostatic pneumonia.
3. Bronchitis chronic, with pulmonary emphysema.

DISCUSSION

By DR. RICHARD C. CABOT

This is the history of a cancer of the stomach. Knowing these symptoms and knowing that he died, gastric cancer would be anybody's first guess. But there are a number of points not character-

istic of carcinoma in the history of the latter weeks before he entered the hospital. The relief by soda is not common, and that he should vomit so late and lose so little weight is not common if that is the diagnosis. On the other hand gastric ulcer at his age and with so short a history is improbable. The patient's early history sounds like tuberculosis.

It does not seem as if he had lost any weight but rather gained, so far as the figures go.

NOTES ON THE PHYSICAL EXAMINATION

"Small masses of areolar tissue in the abdominal wall." Does anybody know what that means?"

Dr. Seeley G. Mudd: They were small masses apparently of adipose tissue in the abdominal wall such as are occasionally found in obese people. They suggested possible metastatic nodules, but on closer examination were thought not to be of that type. The medical consultant thought it unnecessary to remove one for examination.

Dr. Cabot: I suppose he has a large prostate.

Dr. Crabtree: It is a pretty mild prostate.

Dr. Cabot: But there is nothing else we ought to think of as a result of his residual, is there?

Dr. Dresser: We have one rather poor film. It shows, as is said, a filling defect at the pyloric end of the stomach. In a man of this age we can conclude pretty positively that the diagnosis is cancer.

Dr. Cabot: The patient was discharged undoubtedly with a diagnosis of inoperable cancer of the stomach.

DIFFERENTIAL DIAGNOSIS

Certainly I do not see any reason to deviate from the guess that we made about the history in the very first lines. A man who has been well so far as gastric complaints are concerned until within six months of his death, then has continuous stomach trouble, with blood in the stomach contents, pain aggravated by food though (contrary to rule) relieved by soda. The absence of any loss of weight is the striking point against cancer. Still, with so much on the other side I do not see how anybody could have any doubt, even if we did not have that very definite x-ray consultation. The surgical consultant at the end mentions nodules in the liver, also at the umbilicus, and this nodule above the clavicle, so that we get confirmation there.

It is striking that a man with such advanced carcinoma as we must suppose this to be should have no anemia. I have often commented on this, that small cancers of the stomach may produce tremendous anemias, and big cancers often none. I do not think anybody knows the reason for this.

As to his lungs, he had a great many symptoms and very little to show for them on physical examination. It is the sort of case where one might consider bronchiectasis, as he had so much sputum and cough for such a long time. But we have nothing definite on physical examination, and no x-ray of the chest. So I do not see how we can say anything definite about his lungs. There is nothing in the examination of his heart to show any lesion. It seems that he died of carcinoma of the stomach with various metastases, and nothing else.

X-RAY INTERPRETATION JANUARY 19

The findings are those of an organic lesion involving the pyloric end of the stomach, partially obstructive; probably malignant.

CLINICAL DIAGNOSIS (From Hospital Record)

Carcinoma of the stomach.

Hypostatic pneumonia (?).

DR. RICHARD C. CABOT'S DIAGNOSIS

Carcinoma of the stomach with metastases.

ANATOMIC DIAGNOSIS

1. Primary fatal lesion

Adenocarcinoma of the stomach with metastases in peritoneum, mesenteric insertion, intestines, mesenteric and retroperitoneal glands and in liver.

2. Secondary or terminal lesions

Hypostatic pneumonia.

Arteriosclerosis.

Hypertrophy and dilatation of the heart.

3. Historical landmarks

Chronic pleuritis.

Dr. Richardson: This was a frank case of adenocarcinoma of the stomach with metastases in various places. He was a stout, well developed white man. The peritoneal cavity contained about 1000 cubic centimeters of thin, pale, fairly clear fluid. The peritoneum generally was studded over with plaques of new growth tissue. The appendix and esophagus were negative. The stomach, from a point about five centimeters above the pylorus and extending upward nearly to the esophagus and practically around the stomach wall, presented a large, thick layer of new-growth tissue. The greater curvature of the stomach in the region of the new growth was bound by old adhesions to the pancreas and transverse colon. The pylorus was negative.

We seldom see metastases from cancer of the stomach scattered along the mesenteric insertion of the small intestine. It was so in this case however. Small nodules of new-growth tissue were scattered along the mesenteric insertion, and there were many nodules here and there on the serosa of the intestine. On the mucosal side of the intestine these rounded up beneath the mucosa, and this mucosal surface showed in places necrosis and degeneration, in other words ulcerations,—a peculiar kind of ulcer of the small intestine. The intestine otherwise was negative.

The mesenteric and retroperitoneal glands were enlarged and showed new-growth infiltration. The liver was ten centimeters below the costal border in the right mammary line. The diaphragm on each side was at the sixth rib. The surface of the liver showed plaques of new-growth tissue scattered over it, but the liver tissue itself showed only a few small nodules for which we had to search. The organ weighed 2100 grams. The gall-bladder and bile ducts were negative.

Dr. Cabot: Do you believe there was anything they could have felt through the abdominal wall?

Dr. Richardson: They might have felt the plaques of new-growth tissue in the peritoneum.

There were old pleural adhesions binding down the lungs on each side. We found considerable mucopurulent fluid in the trachea and bronchi. In the lungs there were large areas of hypostatic pneumonia.

The heart was moderately enlarged, weighing 516 grams. The valves were frankly negative. The coronaries were free and capacious. The aorta and great branches showed marked arteriosclerosis, fibrous and fibrocalcereous in character.

The spleen weighed 200 grams and showed no lesions. The adrenals were negative.

The combined weight of the kidneys was 330 grams. They were in good condition. The cortex was five to six millimeters.

The prostate, seminal vesicles and testes were negative.

A Physician: Do you think the duodenum was affected?

Dr. Richardson: No.

Dr. Cabot: It seems to me the only thing to remember here is that a person can be very fat, have no anemia, and die of extensive gastric cancer.

CHRONIC FEVER WITHOUT LOCAL SYMPTOMS

CASE DISCUSSION BY YAVAPAI COUNTY MEDICAL SOCIETY.

(Group 2. in discussion of Case 13301, Case Records of Massachusetts General Hospital, taken from Boston M. & S. Journal, of July 28, 1927, p. 138.)

W. E. McWHIRT, M. D., Whipple, Ariz.

B. L. JONES, M. D., C. M., Whipple, Ariz.

CASE RECORD

A married Scotch-American woman of twenty-six entered February 7 complaining of dyspnea, palpitation, precordial pain, fatigue and weakness, all severe for the past four and a half months.

Until thirteen years before admission she was in excellent health. Then she had an attack of scarlet fever followed by rheumatic fever which kept her in bed most of the time for months. For the next three years she had dyspnea on moderate exertion and was treated in a hospital out-patient department about once in two weeks. She came to the Massachusetts General Hospital Out-Patient Clinic once nine years before admission, complaining of vomiting, fever, sore throat and chills. Examination at that time showed the tonsils swollen, a membranous patch on the right tonsil, heart borders 10.5 centimeters to the left, 4 to the right, a loud blowing systolic murmur heard all over the precordia and the back, pulmonic second sound markedly accentuated. Streptococci were found in a throat culture. A few weeks later she entered another hospital where she was treated for two months with great improvement. For the next three years she felt well and was only slightly dyspneic. Five years before admission she married and soon afterwards became pregnant. She had a stormy pregnancy. At four months she made a second visit to the Out-Patient Department of this hospital complaining of dyspnea, palpitation, rapid heart and precordial pain, also of a sudden "bilious attack" a month before admission with severe nausea and vomiting, pain over the whole abdomen marked tenderness in the right lower quadrant and high fever. This attack lasted a day. For six weeks she had had periods of dizziness, especially when nauseated. For some months she had been constipated. Examination showed the apex impulse of the heart forcible and heaving in the fifth space 7.5 centimeters to the left of the midsternum. Rhythm regular. A rumbling apical diastolic murmur ending in a forcible first sound followed by a long systolic murmur which masked the first sound. Pulmonic second sound sharp and reduplicated. In spite of prenatal care of the Lying-in Hospital she gave birth at home with a very hard labor lasting two days. She was exhausted for weeks and afterwards felt weak and tired even on moderate exertion. She was troubled with constipation at times. She kept quiet but did her housework and had no precordial pain nor unusual rapidity. The dyspnea and weakness became more marked a year and a half before admission, when her mother died, and still worse when her brother died nine months before admission. Her catamenia had been irregular for a year. For the past few months she had had slight dizziness and blurring of vision at times. She sometimes urinated once at night. She had had occasional night sweats. For six months she had had gas attacks and for three months slight nausea. Four and a half months before admission there was a definite change. She became more dyspneic, weaker and had fever for days with a remission of a

day or two. There was pain over the entire precordium, worse on moderate exertion, radiating to the left axilla, with a feeling of pressure over the heart. Her heart became rapid. She felt exhausted at times and spent most of the time in bed. Three months before admission she felt worse and went to a hospital where she remained two months. During her stay she had a severely sore throat. She left against hospital orders while she still had fever. Since leaving the hospital her symptoms had remained the same, with intermittent fever, the last feverish feeling three days before admission to the hospital. Her bowels had been very constipated. For a month or more she had had dull pain at the left of her stomach, almost constant by day, without relation to eating. For two or three weeks recently she had a large flat, very firm swelling in the palm of her right hand. At admission there were no traces of it, but she had pain in the fingertips. For the past four days she had felt well. Nine months ago she weighed 135 pounds, her best weight. It had gradually dropped to 103½.

Her mother had chronic rheumatism.

Clinical examination showed a fairly well developed and nourished, pale girl with flushed cheeks lying flat in bed in no apparent discomfort. The tongue showed several denuded areas, "geographical type." The apex of the left lung was dull to percussion in front below the clavicle. Apex impulse of the heart tremendously forcible; an impulse could be felt in each interspace on the left. Apex did not seem to shift. Definite thrill. Heart enlarged in both directions,—left border 11 centimeters, midclavicle 7.5, right border 4, supracardiac dullness 6. Loud harsh high-pitched systolic murmur at the apex transmitted everywhere, including the entire back. At the aortic area a low-pitched systolic, not transmitted. No diastolic murmur anywhere even after exercise. Blood pressure 105/65 to 115/58 to 100/55. Electrocardiogram showed normal rhythm, rate 80, intraventricular block. Abdomen tender in the left upper quadrant. Spleen easily palpable, tender. Vaginal examination showed the uterus retroverted. Tips of left thumb and forefinger showed petechiae. Reflexes normal.

Urine normal in amount, cloudy at 5 of 13 examinations, alkaline at 2, the slightest possible trace of albumin at 3, slightest possible trace of sugar at one, specific gravity 1.010 to 1.020, 0 to 2 red blood corpuscles at 4 sediment examinations, 1 to 10 leucocytes at 9. Renal function 40 per cent. Blood: 8,050 to 11,150 leucocytes, polynuclears 68 to 57 per cent, hemoglobin 70 to 80 per cent, reds 4,211,000 to 3,850,000, slight to moderate achromia in three smears, no other abnormalities, no endothelial phagocytes found. Wassermann negative.

T. 98.1° to 101.8° with daily afternoon rise: after February 19 not above 100.9°. P. 77 to 119. Respirations normal.

The patient complained of epigastric pain and distress somewhat relieved by soda. February 10 with the patient lying forward a low-pitched rumble was heard just inside the apex impulse occupying the second half of diastole, heard only with a bell chest piece. The patient complained a great deal that day of "gas on the stomach." The following day the presystolic was not heard in any position, and the patient felt much better. An hour after the last note Dr. White said that a diastolic murmur was very evident.

The night of February 13 the patient complained of much pain in the muscles of the left thigh. There was nothing to show for it.

She remained in practically unchanged condition for the next ten days, with no complaints until February 25, when she had aching pain with tenderness behind the lateral malleolus of the right foot.

DISCUSSION

W. E. McWhirt, M. D.

The case we have for consideration this evening is that of a Scotch-American housewife twenty-six years of age, who entered the hospital February 7th. Her complaints on admission were dyspnea, palpitation, precordial pain, fatigue and weakness. Until the age of thirteen her health had been excellent. At this age she had scarlet fever, followed by rheumatism which confined her to bed most of the time for four months. From the age of thirteen her existence had been one of ups and downs, so far as her health was concerned. At the age of seventeen she came to the Out-Patient Department complaining of vomiting, fever and sore throat. Her tonsils were swollen and one showed a membranous patch. Her heart was 10.5 centimeters to the left and 4 centimeters to the right. There was a loud, blowing systolic murmur heard all over the precordia and the back, the pulmonic second sound being accentuated. The throat culture showed streptococci. After a short time she entered a hospital where she remained two months with marked improvement. For the next three years she was fairly well, except for slight dyspnea. She was married at the age of twenty-one and soon became pregnant. Her pregnancy was exceedingly stormy. Her heart symptoms became worse. At the third month she had what appeared to be an acute abdominal infection, but the acuteness lasted only one day. She was delivered at home, labor lasting two days. She was exhausted for weeks and afterwards felt tired and weak on the slightest exertion. A year and a half before admission she lost her mother and all her symptoms became worse. Nine months later a brother died, and this increased her distress. Her menses had been irregular for years. Lately she had some dizziness and blurring of the vision and at times some nausea and gas. Four months ago there was a definite change for the worse. Dyspnea and weakness increased and she had fever for days at a time. There was pain over the entire precordium, radiating to the left axilla. Her heart became rapid. Three months ago she entered a hospital and remained for two months. During her stay she had a severely sore throat. She left the hospital against medical advice while still having fever.

She was very constipated. For a month she had a dull pain in the left upper quadrant of the abdomen, slightly to the left of the stomach, almost constant by day, without relation to eating. For several weeks she had a large, flat, very firm swelling in the palm of the right hand. At en-

trance this had disappeared, but there was still pain in the finger tips. For the past four days she had felt very well. Nine months ago she weighed 135 pounds, at the present she weighs 103 pounds.

The only family history given was that her mother had rheumatism.

Clinical examination showed a well developed and nourished woman, pale, with flushed cheeks. The tongue showed denuded areas, "geographical type." The apex of the left lung was dull to percussion, below the clavicle. Apex impulse of the heart tremendously forcible; an impulse could be felt in each interspace on the left. There was a definite thrill. Heart enlarged in both directions; left border 11 centimeters, right 4 centimeters, supracardiac dullness 6 centimeters. Loud, harsh, high-pitched systolic murmur at the apex transmitted everywhere, even to the entire back. At the aorta, there was a low-pitched systolic murmur, not transmitted. No diastolic murmurs were heard. Blood pressure 105/65 to 100/55. Electrocardiogram showed normal rhythm, rate 80 intraventricular block. Abdomen tender in the left upper quadrant. Spleen easily felt, tender. Uterus retroverted. Tips of left thumb and forefinger showed petechiae. Reflexes normal.

Urine, specific gravity, 1010 to 1020. Slight trace of albumen. Few blood corpuscles. Renal function 40 per cent. Blood, hemoglobin 70 to 80 per cent; reds average four million, slight achromia; leucocytes eight to eleven thousand; polynuclears 68 to 57 per cent. Wassermann negative.

Temperature 98° to 102°, with daily afternoon rises. Pulse 77 to 119. Respiration normal.

February 11, presystolic murmur was not heard in any position and the patient felt much better. An hour after this examination, Dr. White stated that a diastolic murmur was very evident.

The night of February 13, patient complained of much pain in the muscles of the left thigh. There was no apparent cause. Condition remained practically the same for the next ten days, with no complaints.

On February 25, she had aching pain with tenderness behind the lateral malleolus of the right foot.

We believe this to be a rather clear description of a chronic streptococcic infection; chronic tonsillitis; subacute endocarditis with showers of emboli.

DISCUSSION

B. L. Jones, M. D., C. M.

The history of this case is very complete, and there are probably no additional points

that one would need in the diagnosis of this case.

You have noted from the history that this patient was well up to thirteen years of age, then had scarlet fever and rheumatic fever. As practically all cases of rheumatic fever have heart involvement, we believe this patient had rheumatic endocarditis at the age of thirteen.

From the history, you will note the fact that there has been evidence of heart trouble from this age on to the age of twenty-six. Also that there has been a severe setback every four years, from the age of thirteen to twenty-six.

First, the rheumatic fever; second, the severe attack of tonsillitis; third, the pregnancy; and fourth, the attack of tonsillitis followed by subacute endocarditis.

Endocarditis, according to Cabot, may be classified as follows:

1. Those that apparently start in the heart and circulation as (a) primary, (b) recurrent; under this heading we have embolism, nephritis, cardiac enlargement, constitutional evidence of sepsis, murmurs, anemia. 2. Those that apparently come to the heart, a form of sepsis; (a) general weakened condition, due to cancer, nephritis, diabetes, debilitating disease; (b) pyaemia; (c) terminal.

As pericarditis is not common in subacute bacterial endocarditis, we do not believe there is a pericarditis present, although there is some evidence of its having been present in the early years of the heart disease.

At the age of eighteen, we believe this patient was in the pre-stenotic stage of mitral stenosis, with systolic murmur at apex, enlargement of heart, pulmonic second sounds accentuated.

Then at the age of twenty-two, evidences of the stenosis, and at the age of twenty-six, the second stage of stenosis of the mitral valve, with definite thrill, presystolic murmur, pulmonic second sounds accentuated, enlargement of heart.

Then, at the age of twenty-six, we have murmurs, varying, presystolic to diastolic, and marked systolic at apex, transmitted to axilla and back. Petechiae, painful fingers, sweating, and intraventricular block, indicating a possible mycotic aneurism, intraventricular, involving one of the branches of the conduction system in ventricles.

These findings are those of a subacute bacterial endocarditis, following on rheumatic heart disease.

To close with the classification and diagnosis, on basis of etiology, structural changes in heart and functional condition—

1. Etiology; rheumatic heart disease (inactive). (Scarlet fever, tonsillitis, rheumatic fever). Subacute bacterial endocarditis.

2. Structural; valvular heart disease, mitral stenosis and mitral insufficiency.

3. Functional; heart failure; intraventricular block.

Diagnosis: Rheumatic heart disease (inactive). Valvular heart disease, mitral stenosis and mitral insufficiency. Subacute bacterial endocarditis. Intraventricular block. Chronic tonsillitis.

DISCUSSION

By Richard C. Cabot, M. D.

1. The heart is quite large for a person of her age. In the first examination we read: "Loud blowing systolic murmur" and "Pulmonic second sound markedly accentuated." That is just the sort of heart examination that people are always recording and that may occasionally be true. But the chances are very great that if you and I had been there we would have heard something more, a middiastolic or presystolic murmur also. The murmurs that are much more significant diagnostically are not heard unless you are listening for them. I am asking myself whether this examination is complete or not.

2. In a man pain and fever would make you think a good deal more of appendicitis. You have to be much more cautious with pain and fever in a woman. It is generally something else.

3. "Pulmonic second sound sharp and reduplicated." (Second examination.) The reduplication is worth very much more diagnostically than the sharpness. The more we study hearts the less we get out of the strength of second sounds. But the reduplication of second sounds especially in this region, does help in the diagnosis of mitral stenosis, which this case suggests.

4. "She had had occasional night sweats." That is the first thing to make us wonder if this case is one of acute or a subacute endocarditis.

5. "She became more dyspneic, weaker, and had fever for days with a remission of a day or two." That again suggests acute endocarditis.

6. The pain over the precordium of course makes us think of pericarditis, which might also account for the fever and the night sweats. I do not think we have pain from acute endocarditis.

7. Pain in the fingertips always makes us think of the little emboli that come there with subacute endocarditis.

8. "Tongue showed several denuded areas, 'geographical type'." So far as I know that means nothing clinically.

9. "The left apex was dull to percussion in front below the clavicle." That may be pericarditis with effusion. It often gives dullness at that point.

10. "Apex did not seem to shift." They are looking for evidence of adherent pericardium, but that is a worthless and unreliable sign. The apex often does not seem to shift, but post mortem the heart is free; or it does shift and you often find pericarditis!

11. There was a definite thrill. What more should we have asked if we had been there?

A Student The kind and where.

Dr. Cabot: "Loud harsh high-pitched systolic murmur at the apex." That is probably where the thrill was. Thrill is generally over the loudest murmur.

I am rather surprised that there are so few leucocytes in the blood. We cannot say that there is a leucocytosis there.

12. No endothelial phagocytes were found. Why did they look for them?

A Student: They are thinking of acute endocarditis.

Dr. Cabot: Yes. We have found them in this hospital more often in the blood in subacute endocarditis than in any other condition. So it has become a tradition to look for them. We generally do find them.

13. Have we the temperature chart?

Dr. Tracy B. Mallory: It is the picket-fence, septic type of temperature.

14. Dr. Cabot: "February 10 with the patient lying forward a low pitched rumble was heard just inside the apex impulse occupying the second half of diastole, heard only with a bell chest piece." They are going after it eagerly. It should be there. They have made the patient shift position so as to bring it out. The bell-shaped chest piece is that of the old-fashioned stethoscope. It is always the best for middiastolic and presystolic murmurs, especially presystolic, because they are lower pitched. We have worked that out with the stethophone here. Low pitched murmurs are much more often presystolic, more than any other, and those are the ones you hear best with the bell of the stethoscope.

15. "An hour after the last note Dr. Paul D. White said that a diastolic murmur was very evident." So you see it makes considerable difference who listens. Of course diastolic is the same as presystolic when you are talking about a case like this.

DIFFERENTIAL DIAGNOSIS

We can make but one diagnosis. What we have is a history of rheumatic fever in a young girl, followed by increasing cardiac symptoms, with the physical signs of mitral stenosis going on for years. Then lately we have an additional set of symptoms, sweats, fever, petechiae on the fingers, with tenderness or pain, and then this pain in the thigh unexplained, but which might perfectly well go with emboli. Did you notice what is left out of the record, probably?

A Student: The blood culture.

Dr. Cabot: Yes. That is what we should like to know about. If it were positive and the case had come to necropsy the heart would probably show mitral stenosis, an old process, and on top of it vegetations of the acute or subacute type. It seems that this is enough to account for everything without looking elsewhere.

Did she have pericarditis? It is very possible. There is no way of proving it one way or the other. She had pain and a big heart, which often go with chronic pericarditis, and that is all we can say.

BLOOD CULTURES

Dr. Mallory: What is your guess as to what the blood culture showed,

Student: Streptococcus. Negative. Streptococcus viridans.

Dr. Mallory: What do you think would be the most likely?

A Student: Streptococcus viridans.

Dr. Mallory: What is the second?

A Student: Gonococcus.

Dr. Mallory: Yes, and I think Dr. Cabot will bear me out in this statement. You expect streptococcus if the lesion is on the mitral valve. If it is on the aortic valve the odds are still on streptococcus, but the chance of gonococcus being found

is much better. The patient did show streptococcus viridans cultures consistently. We had six flasks in all, taken at three different times, and never failed to recover the streptococcus viridans at any time.

Dr. Cabot: Is there any additional history that shows more evidence of emboli?

Dr. Mallory: I think not. This brings it pretty well up to date.

DIAGNOSIS

Rheumatic heart disease, chronic. Mitral stenosis. Subacute bacterial endocarditis.

AMPULE MEDICATION

Sterile solutions in ampules for subcutaneous, intramuscular or intravenous use are rapidly assuming one of the foremost places among pharmaceutical products. They are being utilized to a greater extent and by an increasing number of physicians as the list of drugs being made available in this form is augmented.

The value of hypodermic and intravenous medication has been realized more and more since the advent of the arsphenamines and a better understanding of the requirements and possibilities of this method of medication.

Numerous drugs admit of no other efficient and safe method of administration, since when given orally they are so adversely affected, even destroyed, by the digestive juices as to render them therapeutically inactive. Among such drugs are epinephrin, insulin and pituitary solution.

Other drugs cannot be satisfactorily given orally because they produce nausea or local gastrointestinal irritation and, owing to the slow or irregular absorption of some substances, the results produced are so variable as to render them of doubtful value or even unsafe.

The advantages of this kind of medication are numerous. It admits of more careful and thorough control of the patient due to greater certainty as to dosage, etc. Prompt and efficient action resulting from rapid and complete absorption also obtain; this being of especial advantage in emergencies.

A new booklet on the subject of ampule medication has recently appeared from the Abbott Laboratories. In this booklet there are interesting chapters on Isotonicity, Hydrogen ion concentration, Buffers, the administration of intravenous injections and a description of solutions in general use. A copy of this booklet may be obtained without cost, on application to the Abbott Laboratories, North Chicago, Ill.

—o—

PYELOGRAPHY

Recently Neo-Silvol has been suggested and used with very gratifying effect in the making of x-ray pictures of the kidney pelvis. It has many outstanding advantages over other salts commonly employed for this purpose. First, it is easy to prepare; second, it makes clear shadows on x-ray films when used in 20% solution; third, it soothes rather than irritates the tissues; fourth, it is distinctly germicidal in quality; fifth, it is non-toxic.

Neo-Silvol is colloidal silver iodide, with a general phenol coefficient of 1, a gonococcide coefficient of 20. It is manufactured by Parke, Davis & Co. and supplied in granules and in 6-grain capsules for convenience in making up solutions of desired strength.

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NEW MEXICO MEDICAL SOCIETY

Information has not come to the journal, as yet, relative to the annual meeting of the New Mexico Medical Society, to be held at Albuquerque, on May 10, 11 and 12, except that they are expecting a very excellent program. The April number of SOUTHWESTERN MEDICINE will issue early in that month, in order to carry information about the program well in advance of the meeting.

ANNUAL MEETING OF THE ARIZONA STATE MEDICAL ASSOCIATION

Tucson is a splendid convention city. The profession there have not only a high order of scientific attainments but a friendliness which makes them excelent hosts. Only one of them will present a paper but a number of them are scheduled to open discussions and in this way they will contribute materially to the scientific program. The arrangement for the social affairs is not yet complete but our experience with Tucson hospitality on previous occasions is testimony that they will make our stay in their city extremely pleasant.

It has become quite the custom for the wives of the physicians to accompany them to the annual meeting of our society. Special entertainment is always arranged for the ladies and this year will certainly be no exception.

In Phoenix and in other places the medical auxilliary has functioned in commendable fashion. Better feeling between the

physicians has been developed, some good doubtless has been done in disseminating facts about scientific medicine to the lay public and the wives of physicians and in many instances the physicians themselves have been brought closer together socially. A state medical auxilliary might be a question worth consideration by the wives who will be at the meeting.

The program for this year is of the usual high order and merits a full attendance by the doctors of the state. It is conspicuous at the various meetings of this type that practically the same old crowd attends the meetings year after year. Occasionally one of the old crowd is absent for one reason or another and we are always certain the reason is a good one; less often a new face is seen. If those who cannot afford to miss the meetings can always find time to be there what should be the lesson for those who never or rarely attend? If every physician in the state would forsake his field for the time of the meeting a double good might be accomplished, to-wit: The profession universally throughout the state, together with the public, would be greatly benefitted; and the public might gain a respect for the physicians which their continued presence cannot stimulate. The old adage "Distance lends enchantment" may apply to other fields than love. At any rate every physician in the state of Arizona should make it his earnest endeavor to attend the Tucson meeting. See the program for dates and the titles of papers which you may wish to brush up on so as to be able to participate in the discussions.

P. S. A parable: A woman came to the editor's office a few days ago, with, she said, a cure for tuberculosis. Not being a physician she craved the co-operation of a physician to permit of her being able to cure the sick. She would not divulge her great secret and hence she was told that co-operation was impossible. She was also told that if she had what she said she had, she should be glad to make it known to all the world. She left the office with her secret (if she had one when she entered), saying she would give it to the world except she hated to let the doctors make money from her knowledge.

P. S. Every physician has secrets which might be helpful to other physicians. The general discussion of papers offers opportunities for physicians to be mutually helpful. Do not keep secret what you believe to be of great value.

ETHICAL MEDICAL ADVERTISING

Advertising is probably not the proper word. A better one does not suggest itself to us. A word to indicate the presentation of facts concerning us and our profession to the lay public should be found. The word advertising seems to scare ethical physicians.

The fact is, every physician knows, that a considerable portion of the public is ignorant of what the medical profession is doing toward making lives happier and longer—not only curing disease, but actually eliminating it. Quacks are thriving. They present their theories blatantly, loudly and confidently. They acquire many followers.

There should be and is some way of letting the people know what we stand for and what is actually being done for them by the medical profession. Some will not listen. Many do. Some cannot be made to believe what they do not wish to believe. Some can—when told often enough and effectively enough. At any rate they should not be able to say "I was not told."

There is no one to tell the people, of the profession and its accomplishments, except members of the profession. The time is coming when this burden must be assumed by members of the profession. Many of the people are now hungry for facts. If any one doubts this, let him attend a meeting advertised by a quack or cultist who professes to tell how to get well or how to stay well.

A CORRECTION

In the February number of Southwestern Medicine an error was made in Dr. E. W. Phillips' article on Ragweed Hay-Fever. In the last paragraph on page 50, sixth line which states "until now it is well established at an altitude of 5000 feet or higher" should read "until now it is well established at 3500 feet and is beginning to take hold in some places at an altitude of 5000 feet or higher."

INDEX TO VOLUME XI.

The index to Volume XI for 1927 of Southwestern Medicine is now ready and will be mailed to subscribers wishing a copy upon request. Address, Southwestern Medicine, 121 East Jefferson Street, Phoenix, Arizona.

DOCTOR SAMPSON RETIRES

In notifying Dr. Harbridge, secretary of the Arizona State Medical Association, that he is retiring from the position of county secretary of the Apache-Navajo society, Dr. George P. Sampson states that he has now arrived at the age where such matters can better be attended to by a younger man. Perhaps they can, but we are very doubtful whether they will be. This incident moves us to call attention to the fact that the two county societies who have been the most prompt in making their reports to the state secretary have both had secretaries whose years are above three score and ten. If we were to formulate an honor roll to include those society members who have been most faithful in their duties and the most dependable, the list would be headed by three veteran practitioners of Arizona; namely, Dr. A. H. Noon of Santa Cruz County, Dr. E. S. Miller of Coconino County and Dr. George P. Sampson of Navajo County.

DR. ROBERT AITON

Dr. Robert Aiton, former resident of Duncan, died at his home in Superior at 8:30 p. m. February 13.

He is survived by several children, among whom are Mrs. Joe Billingsley, former resident of Clifton, James Aiton of Clifton, Sam and Robert Aiton.

Funeral services were held on February 15.

Arizona State Medical Association

THIRTY-SEVENTH ANNUAL MEETING

Tucson, April 19, 20 and 21.

HOTEL HEADQUARTERS

SANTA RITA HOTEL

PROGRAM

SCHEDULE OF BUSINESS MEETINGS

- Council Meeting, Wednesday, April 18, 8:00 p. m.
 Executive Session, House of Delegates, April 19, 8:00 a. m.
 Executive Luncheon, House of Delegates, Friday Noon, April 20.
 Open Meeting, House of Delegates, Friday Afternoon, 1:30 p. m.

GENERAL SESSIONS

THURSDAY, APRIL 19, 1928
 10 A. M.

Invocation—REV. E. W. STRICKER, Tucson.
 Address of Welcome—DR. S. B. NORRIS, Tucson,
 President Pima County Medical Society.
 Response:
 Introduction of President-elect.

1. F. G. SCHAIKLE, M. D. - - Tucson, Arizona
"The Value of the Laboratory to the Clinician."
 Discussion.
2. JOHN J. McLOONE, M. D., and
 HARLAN P. MILLS, M. D. - Phoenix, Arizona
"Endothelioma of Cervical Structures with Case Report."
 Discussion opened by CLARENCE E. IDE, M. D., Tucson, Arizona.
3. W. L. BROWN, M. D., El Paso, (By Invitation.)
"The Life, Growth and Reproduction of Bone in Its Relation to the Healing of Fractures."
 (with lantern slides.)
 Discussion to be opened by MEADE CLYNE, M. D., Tucson, Arizona.

AFTERNOON SESSION, 1:30 P. M.

4. A. C. SCOTT, M. D. - - - Temple, Texas
Oration on Surgery:—The Cancer Problem.
5. FRANK J. MILLOY, M. D. - Phoenix, Arizona
"Etiology and Clinical Signs of Chronic Cholecystitis."
6. W. WARNER WATKINS, M. D., Phoenix, Arizona
"The Roentgenologic Signs of Chronic Cholecystitis."
7. E. PAYNE PALMER, M. D. - Phoenix, Arizona
"The Treatment of Chronic Cholecystitis."
8. W. O. SWEET, M. D. - - Phoenix, Arizona
"The Technic of Cholecystectomy."
 Discussion of Nos. 5, 6, 7 and 8 to be opened by VICTOR M. GORE, M. D. and S. H. ECKLES, M. D., Tucson, Arizona.

THURSDAY EVENING

Smoker.

FRIDAY, APRIL 20

MORNING SESSION, 9:00 A. M.

9. HENRY DIETRICH, M. D., Los Angeles, California, (Fraternal Delegate from the California State Medical Association).
"Diagnosis and Treatment of Poliomyelitis."
10. JOHN C. WILSON, M. D., Los Angeles, Calif. (By Invitation).
"Orthopedic Aftercare in Anterior Poliomyelitis."
11. G. H. LUCKETT, M. D., Santa Fe, New Mexico, (Fraternal Delegate from the New Mexico Medical Society).
"Public Health Measures in Poliomyelitis."

12. M. C. FRONSKIE, M. D. - - Flagstaff, Arizona
"Epidemic Poliomyelitis, with Case Reports."
13. KIMBALL BANNISTER, M. D., Phoenix, Arizona
(To be announced).
 Discussion on Nos. 9, 10, 11, 12 and 13 to be opened by J. I. BUTLER, M. D., and W. V. WHITMORE, M. D., Tucson, Arizona.

AFTERNOON SESSION, 2:30 P. M.

14. ORVILLE HARRY BROWN, M. D., Phoenix, Ariz.
"Food Sensitization and Its Treatment."
 Discussion to be opened by C. S. KIBLER, M. D., Tucson, Arizona.
15. HAL RICE, M. D. - - - Morenci, Arizona
"Fracture of the Femur with Case Report."
16. J. M. GREER, M. D. - - - Mesa, Arizona
"Remarks on Fractures."
 Discussion of Nos. 15 and 16 to be opened by C. A. THOMAS, M. D., Tucson, Arizona.
17. EDWARD H. SKINNER, M. D., Kansas City, Mo. (By Invitation).
"Radium Treatment in Cancer of the Cervix and Menopausal Bleeding."
 Discussion.

FRIDAY EVENING

Annual Banquet.

SATURDAY, APRIL 21

MORNING SESSION, 9:00 A. M.

18. JOHN W. FLINN M. D. - Prescott, Arizona
"The Leucocytic Picture as an Aid in the Diagnosis, Prognosis, and Treatment of Pulmonary Tuberculosis."
19. A. D. LOEWY, M. D. Fort Whipple, Arizona
"Overcoming the Tuberculosis Handicap."
20. J. J. BEATTY, M. D., U. S. Veterans Bureau No. 51, Tucson, Arizona.
"The Healing of Pulmonary Tuberculosis with an Exhibition of Serial Roentgenograms Showing the Various Types of Healing."
21. FELIX P. MILLER, M. D., El Paso, Texas. (Fraternal Delegate from the Texas State Medical Association).
"Surgical Problems Pertaining to Surgery of the Lung and Chest Wall."
 Discussion on Nos. 18, 19, 20 and 21 to be opened by SAMUEL H. WATSON, M. D., D. L. MAHONEY, M. D., and C. W. MILLS, M. D.
22. D. F. HARBRIDGE, M. D. - Phoenix, Arizona
"The Use of Lenses and Mountings."
 Discussion to be opened by T. H. CATES, M. D., Tucson, Arizona.

SATURDAY AFTERNOON, 1:30 P. M.

23. W. R. QUINN, M. D. - - Morenci, Arizona
"The Diagnosis of Uterine Bleeding in Pregnancy."
24. A. J. MCINTYRE, M. D. - Phoenix, Arizona
"Vincent's Angina Infection of the Uterus—Report of Case."
 Discussion of Nos. 23 and 24 to be opened by I. E. HUFFMAN, M. D., and E. J. GOTTHELF, M. D., Tucson, Arizona.
25. H. D. KETCHERSIDE, M. D. - Yuma, Arizona
(To be announced).

GRANT COUNTY (N.M.) MEDICAL SOCIETY

The January meeting of the Grant County Medical Society was held at Fort Bayard on Jan. 20, 1928. President N. D. Frazin, presiding.

The members present were Drs. Robinson, Brown, Ferrell, Tucker, Parmenter, Groom, Colvard, Bulson, Kramer, Lacy, Wood, Frazin, Coumbe, Donahue, and Danielson.

The minutes of the last meeting were read and approved.

DR. R. J. GROOM of Santa Rita presented a young woman of 20 with typical bilateral optic atrophy and with the syndrome known as "dystrophia adiposogenitalis." She had not menstruated for three years and had been blind for two years. The condition was considered due to a hypophyseal tumor, probably an adenosarcoma. Discussed by Drs. Bulson, Lacy and Groom.

DR. R. J. GROOM presented also an excellent paper on Addison's disease, with report of two cases treated by the Muirhead regime. Discussed by Drs. Parmenter, Kramer and Groom. The point was brought out that whereas this condition is usually considered secondary to tuberculosis, it may also be caused by syphilis, malignancy, influenza, pneumonia and shock.

DR. N. D. FRAZIN, of Silver City, read a very complete report of a case of pernicious anemia. There was a lively discussion of many phases of the disease by Drs. Kramer, Lacy, Groom, Parmenter, Brown, Coumbe, Danielson and Frazin in which various results from many forms of treatment were mentioned, including the liver diet. Dr. Frazin said that the administration of dilute hydrochloric acid apparently had given the most relief in this case. It was the consensus of opinion that, in evaluating various remedies in this disease, one must be very skeptical, because of the variable factor of the well-known remissions.

The financial report of Dr. Wood for 1927 was read and approved.

President Frazin appointed Drs. Groom, Lacy and Coumbe as the Committee of Censors to act for three, two and one years, respectively.

DR. R. R. ROBINSON, formerly of Boone County Medical Society of Missouri, and now practicing at Santa Rita, N. M., was admitted to membership by transfer.

Dr. Brown, C. O., Fort Bayard, very kindly placed the laboratory facilities of Fort Bayard at the command of the members of the Society in cases where such services would make the presentation of cases more complete. Needless to say, this offer was very much appreciated by the outside men who see many interesting cases who are unable to pay for such services.

Adjourned at 10 p. m.

The February meeting of the Grant County Medical Society was called to order at Fort Bayard, New Mexico at 8 p. m. on Feb. 24, 1928, by President N. D. Frazin.

The members present were: Drs. Frazin, Robinson, Wood, Kylo, Kramer, Mann, Ferrell, Parmenter, Lacy, Summers, and Danielson, and Mr. Stockton. The minutes of the last meeting were read and approved.

DRS. R. R. ROBINSON and R. W. DANIELSON presented specimens of "Taenia Saginata" and "Ascaris Lumbricoides," and Dr. Robinson read a well prepared paper on the symptomatology and diagnosis of infestation with these parasites. Dr. Wood gave an interesting discussion, especially on the technic of the examination of stools.

DR. R. W. DANIELSON presented a man with varicose veins of the abdomen which had been present

for about ten years, and for which no definite cause could be found. A resumé of the usual causes of this condition, and of the case reports in the literature, was given. Dr. Kramer said he had seen only one case previously. There was evident pressure on the iliac veins in the pelvis from a malignant growth. The other physicians present had seen no case so marked. Dr. Summers discussed the condition.

DR. DAVID KRAMER read a most excellent and epochal paper on "Observations in the Treatment of Chronic Pulmonary Tuberculosis." The value of rest, exercise and climate was stressed. There was an interesting discussion by Drs. Mann, Parmenter, Ferrell, Frazin, Lacy and Kramer. The consensus of opinion was that the value of climate is not appreciated until personally observed. Dr. Kramer was thanked for favoring the Society with such a paper.

Dr. Percy E. Kylo was unanimously elected to fill out the term of Dr. R. W. Danielson, resigned. Adjourned at 10:30 p. m.

R. W. DANIELSON,

Sec'y. & Treas.

MARICOPA COUNTY MEDICAL SOCIETY (Phoenix, Ariz.)

The regular bi-monthly meeting of the Maricopa County Medical Society was held on Feb. 6, in the lecture room of St. Joseph's Hospital, with thirty two in attendance. This was the regular annual meeting for the discussion of economics and ethics. Dr. R. J. Stroud, president, presided, with Dr. O. H. Brown as acting secretary.

The president called the vice-president, Dr. R. T. Franklin, to the chair and delivered his presidential address on "The Future of Medicine." (This address was published in last month's journal.)

In discussion, Dr. W. O. Sweek called attention to the activities of an organization called the American League of Liberty, who were circularizing the medical profession as well as the general public in opposition to vaccination and other health measures. He did not think protecting the public is one of our jobs, and called attention to the action of the Ohio State Medical Association, when they were asked to come before the legislature and help defeat a pernicious bill; they replied that it was the business of the legislature and not of the medical association to protect the public. The basic science bill in the last legislature was thought by law-makers to be a means of giving some advantage to the medical profession; therefore, it failed. He spoke very disparagingly of the work of the society during the past fourteen years; he thinks it is usually a waste of time to attend the meetings, as the papers are culled from text books.

Dr. H. T. Bailey commented on the work of the nurses in examining school children, which he thinks is very valuable. He recalled two children recently brought to him on the advice of the school nurse for eye troubles.

Dr. J. M. Greer said that he had been told the Social Service Clinic in Phoenix was overcrowded due to cases coming from the south side; he thought that such cases might be sent to the physicians of the south side to be handled at their offices.

Dr. F. B. Sharpe said that the cases of obstetrics handled by him at the Clinic he thought were deserving of help; he is inclined to believe the clinic selects its cases carefully.

Dr. H. Yandell said his experience had been different; that he had repeatedly been consulted about operations on throat or nose, to be told that it could be done cheaper at the Clinic; he was certain many of these cases could pay reasonable fees to private doctors.

Dr. H. T. Felch recalled a case of a woman who consulted him relative to an operation, for which he could see no need later the woman visited the clinic and was turned over to a surgeon for operation; subsequently she consulted him again, and he still could see no reason for the operation.

Dr. W. W. Watkins recalled the fact that the medical work at the Clinic was supposed to be under the direction of the County Medical Society, whose president is a member (ex-officio) of the Board of Directors of the Social Service Center. The president of our society is supposed to organize the service of the doctors at the Clinic and supervise it. If evils have crept into the work of the Clinic, it is perhaps because of failure on the part of the Society to attend to its duties in this respect. He made motion that the president of the society appoint two additional members to serve with him as a committee of three to investigate the conduct of the medical service at the Clinic and correct such evils as may exist. Motion was seconded by Dr. Drane. Motion prevailed.

Dr. Stroud stated that the American Medical Association bulletin recommends that patients be first seen by physicians of their choice and then take cards from these physicians to the Clinic, stating that they are deserving of treatment at the free clinic.

Dr. W. W. Watkins presented the subject "Ethics of Medical Practice." He dwelt particularly on the ethics of the specialties in handling their patients; he first called attention to the failure to treat the clinical pathologist and roentgenologist as a consultant, first by withholding information regarding the conditions under examination, second, by giving to the patient the confidential report of the consultant and often by giving the films to the patient, and third, by so frequently attempting to have the consultant give an independent opinion to the patient. All of these are violations of the ethics of the consultation procedure. He read a humorous diatribe on fee-splitting from the Med. Jour. & Record, written by a Kansas City physician.

Dr. H. L. Goss agreed with the statements relative to the handling of laboratory and x-ray reports; he frequently gives reports to patients at the request of physicians, but prefers to have the doctor present. In connection with fee-splitting he called attention to the stand of the Council on Education relative to laboratories, and their ruling that any sort of fixed fee arrangement comes under contract practice, which they consider unethical.

Several of the doctors stated that they did not give reports to the patient, but gave their own opinion which might or might not be in accord with such reports.

Dr. Burger related his experience recently with two consulting physicians, who seemed to him to be too free in their discussions before the patient; he said that they consulted together, decided upon treatment and administered it.

Dr. E. P. Palmer made motion that the physicians of the society agree to keep confidential the laboratory and x-ray reports, and if the patient desired reports, they be sent to the laboratory for them. This started considerable discussion which indicated that the method of handling x-ray reports varied considerably. Seconded.

Dr. Watkins stated that in his opinion, there were two entirely proper methods of handling x-ray reports; one is used by Dr. Palmer, who leaves the films at the laboratory and when he wishes to demonstrate films to the patient, he brings the patient to the laboratory and stays while the x-ray consultant explains the findings and then takes the patient away with him. If this method can be followed by Dr. Palmer, it is certainly possible for any other doctor. The second method is illustrated by Dr. Smith's technique; Dr. Smith is not in the same building as the laboratory, so the films and the report are

sent to his office. He keeps the report and files the films with his own records of his patient; he does not give other to the patient. Those doctors who give the reports and films to the patient are injuring themselves more than anyone else. Dr. Palmer's motion was put and lost, 10 to 9.

Dr. E. P. Palmer spoke on "Medical Advertising and Propaganda," recounting the experience of the El Paso County Medical Society in their advertising campaign last year. Discussion on this topic was deferred to the next meeting, in order to hear Attorney D. E. Wilson, of the Merchants and Manufacturers Association on "Business Methods." The discussion of this topic was also deferred until the next meeting, on account of the late hour.

ORVILLE H. BROWN,
Sec'y. Pro tem.

DEACONESS HOSPITAL STAFF MEETING

(Continued from February Issue)

Case 1916, diverticulum of the bladder, was discussed by DR. WILLARD SMITH. This case is still under treatment in the hospital and will be presented in full at some future time in these pages.

Case 1957, acute abdomen, was presented by DR. STROUD.

Mexican man, who was absolutely uncommunicative, came to the office at about eleven o'clock one morning, evidently in severe pain. On examination he was found to have a board-like abdomen; he was in a cold clammy sweat and had an anxious expression. His attack had begun about three o'clock that morning.

Examination showed patient about 21 years old, in good flesh, about five feet five inches high, weight 135 pounds. Facial expression one of pain and distress. Eyes fixed but reacted to light and accommodation; no obstruction in nose; teeth showed pyorrhea; tonsils normal; ears normal; neck negative; heart normal in size and position, with apex beat one and a half inches inside nipple; rate 60 with heavy thrust. Lungs normal to stethoscope. Abdomen absolutely board-like, with no especial point of tenderness; enema was given with very little relief though with copious results. Bones and joints normal. Urinalysis not made before entrance to hospital. White cells 13200. Temp. at eleven o'clock 98.3; at three o'clock 98. Cold perspiration over whole body.

Patient was taken to hospital and operated upon at once under diagnosis of acute abdomen. A long, fibrous, kinked appendix was found and removed. The stomach, kidneys, bladder, duodenum, intestines and gall bladder were normal to sight and touch. Operation did not reveal sufficient pathology to account for symptoms. He made a slow recovery and stitches were removed on the tenth day; the next morning the wound was wide open and had to be again closed.

Pathological report on the appendix was: distal and fibrous cord; proximal lumen narrowed and sharply curved; sections show fibrous and muscular layers narrowed and sharply curved, with slight round cell infiltration of the mucosa and submucosa.

Blood examination in hospital showed white cells 13700; 86 per cent polynuclears, hemoglobin 90 per cent; Wassermann negative. Urine showed a trace of albumen and occasional r.b.c.

X-ray of the chest showed diaphragm slightly elevated on the right side, but smooth in contour; there was a diffuse haziness throughout the lung fields of each side, probably representing a broncho-pneumonic type of lung lesion.

The conclusions were that the man was operated upon unnecessarily, and that he had some

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type of infection involving the alimentary canal and the lungs.

Case 1915, gas gangrene, was presented by DR. A. J. MCINTYRE.

A strong, healthy-appearing man, age 54, weighing about 180 pounds, a mechanic, while crossing the street on December first, was struck by a car and knocked to the pavement. His right leg was injured and profuse hemorrhage occurred, patient being brought to the hospital at 9:40 a. m. Examination showed a large, clean-cut wound extending from the outer side of the right knee, upward for a distance of 12 or 14 inches. The cut extended through all the muscles down to the bone with evidence that the periosteum had been scraped. There was profuse hemorrhage from the wound which seemed to have been made by a sharp instrument being pushed upward and inward. Bleeding vessels were ligated, and wound thoroughly washed out with two per cent mercurochrome. Lacerated muscles were drawn together; four rubber drains were left in wound and skin drawn tight together with clips. Patient's general condition was good when put to bed. Routine urinalysis showed 1.9 per cent sugar, with acetone positive and diacetic negative. Leucocyte count was 29,400. Blood sugar examination showed .31 mgm. Patient's condition seemed good, drainage was free, he felt comfortable and there was no warning of impending danger. About six p.m. on Dec. 2nd, patient became restless, he perspired freely and complained of pain in the thigh. Morphine was given and he rested well. At five a.m., Dec. 3rd, wound was dressed and a few gas bubbles were seen apparently coming from the wound; at eight a.m., the leg below the injury was swollen and gas could be felt beneath the skin in foot and leg. Skin clips and stitches were removed and the wound opened wide. Chlorazene was run continuously through wound but it became worse rapidly. At 2:15 p.m. patient expired.

Culture from the wound showed the typical capsulated bacilli, with vigorous gas formation in twenty four hour cultures. Serum was not thought to be obtainable in the city and its efficacy is doubtful.

DR. PURCELL said he recently had a case of gas gangrene and gave the antitoxin; improvement followed and two more doses were given 24 hours later, but patient died; had sufficient serum been available so that a dose could have been given every twelve hours, he thinks patient might have been saved. Dr. Sharp reported seeing a case of gas gangrene in an eastern hospital where every sort of treatment, including amputation, was used, but without avail. Dr. Berger said that he does not believe any serum will do these cases any good. Dr. Garrison said he had helped to operate on many cases of gas gangrene during the war; always amputation was done high, but they never succeeded in saving a single patient.

Case 1979, threatened eclampsia, was reported by DR. L. H. THAYER. Primipara, 29 years old, white. Family history negative. Patient had always been in good health; menstrual periods have been regular. Her last menstrual period was April 10. She had only slight nausea during the early months of pregnancy; urine was normal and B.P. ranged between 100-80 and 116-80.

On December first, about six weeks before term, she had tonsillitis, vomiting, diarrhea and abdominal pains; these ceased within a short time and after four days she appeared to have recovered. The husband had tonsillitis, vomiting, diarrhea, fever and general aching, apparently the same symptoms the wife had. Within a week after this the wife noticed that her feet were swollen and

it was found that the blood pressure was 140-90, and the urine showed .10 per cent albumen, but without casts or blood cells. Within four days the B.P. had gradually gone to 170-130 and the albumen had increased to .6 per cent. Patient began to have uterine pains and was sent to the hospital on Dec. 12th. The next day (thirteenth) the albumen was .687 per cent, without casts, and the B. P. ranged from 150-106 in the morning to 192-116 at 9 p. m. Patient was nervous and had an uneasy feeling in the epigastrium, with slight headache and some disturbance of vision. The blood pressure was usually highest in the middle of the night. Uterine pains gradually subsided and albumen decreased for a few days, but hyaline casts and blood cells appeared. Magnesium sulphate was given intravenously at frequent intervals especially when the blood pressure was highest. By Dec. 20th the albumen had increased to .313 per cent with hyaline casts and blood cells present, and the blood pressure reached 208-122. The nervousness was relieved somewhat by using sedatives, but the general condition appeared to continue about the same except that the patient was becoming weaker. It was thought that further control of the toxemia by the methods being used was not probable, and after consultation, cesarian section was decided upon. This was done under general anesthesia. The albumen increased for a few days after operation, though the blood pressure gradually decreased. Within six days after the operation, the albumen and casts had disappeared and the blood pressure was down to 160-108. Before the patient left the hospital on January 7th, eighteen days after the operation, the blood pressure was 130-92 and the patient was in good condition.

The history of this case would seem to indicate that the puerperal toxemia was precipitated by an intercurrent infection. Convulsions were apparently prevented by the intravenous use of magnesium sulphate, although the patient was not relieved of the toxemia.

DR. HAMER said that during one month of the past year, the hospital had sixteen cases of threatened eclampsia; he observed one outstanding fact and that is that all these cases entered the hospital with respiratory infection.

DR. GARRISON said he had seen a Mexican woman in eclampsia; she was delivered and yet the convulsions continued; he gave 20 c.c. of fifty per cent glucose solution and the convulsions stopped immediately. Dr. Thayer said in some cases magnesium sulphate was given and yet the eclampsia could only be controlled by emptying the uterus. Dr. McIntyre said that obstetricians now recommend magnesium sulphate to control the milder cases and to prepare the more severe cases for operation. Dr. Hamer said in this patient magnesium sulphate had a tendency to inhibit respiration and he had not given as much as might be necessary. Dr. Berger said that Dr. Garrison's case was probably one of acidosis. Dr. Stroud thinks that many cases of eclampsia, especially with colds, are due to acidosis. Dr. Smith said he had little experience with magnesium sulphate because he has been afraid of its effect upon the respiratory tract.

Case 1791, gunshot wound of the chest, was presented by DR. JOHN WIX THOMAS: Patient was a woman who entered the emergency room of the hospital, after receiving gunshot wounds at home, following some family difference. She was a middle aged, white female who came in in grave condition. Examination showed that bullet had entered the anterior right chest just outside the midclavicular line at lower border of second rib, leaving the chest posteriorly two inches to the

right of midline at level of ninth rib. Wound bled freely and palpation showed subcutaneous emphysema over right chest. Patient was in serious shock, with face very pale, lips colorless, body cold and imperceptible pulse. She was at once given heart stimulants and placed in bed for the usual agencies for hemorrhage and shock. No other evidence of injury was found. Patient made a slow but progressive recovery and was discharged from the hospital after about three weeks. The urine was positive for sugar.

Adjournment at ten o'clock.

ORVILLE H. BROWN Secy.

MINUTES OF A MEETING OF THE RECORDS COMMITTEE OF THE ARIZONA DEACONESS HOSPITAL STAFF.

A meeting of the History Records Committee of the Arizona Deaconess Staff was held at the hospital Saturday, January 14th, at 6:30 p. m. at the call of the chairman, Dr. J. M. Greer.

Present at the meeting were: Dr. J. M. Greer, Mr. and Mrs. Sexton, Hospital Historian, Miss Erickson, Dr. S. I. Bloomhardt and Dr. R. J. Stroud.

During the dinner an informal discussion was held as to ways and means of hospital betterment.

The meeting being called to order by the chairman, Dr. Greer read a letter sent by himself to the American College of Surgeons asking information about better records, and their answer to the same. He also read a review of what constitutes proper records from the American College of Surgeon's Handbook.

Dr. Greer asked for suggestions as to what would be necessary for us to plan during the coming year to improve the records and also to overcome the criticisms of our records by the inspector of the college.

The hospital historian read some suggestions which she thought would be of help after having visited St. Joseph's hospital for ideas as to their method of getting better histories.

After a good deal of discussion the following suggestions were agreed upon which were to be presented to the hospital council and then to the staff for their consideration.

1. That the history records committee be given 10 minutes at each staff meeting to present recommendations or suggestions.

2. That a special chart, brief and to the point, be made for the men doing tonsil work, so that some sort of record of the case be written up and signed by the surgeon doing the work. The chart to include the following: Chief Complaint, History of Present Illness, Physical examination, (relating to the throat, heart and chest), Reason for operation, Operative risk (good, fair or bad), Coagulation time of blood, Technic of Operation. What was done, Condition of Patient on leaving the Hospital. At this time this is to be in the form of a recommendation to be presented at the next staff meeting.

3. What is necessary for histories on patients admitted to the hospital for 48 hours or less?

4. How about out-patients and those minor injuries who go home after treatment or first aid? All emergencies are included. How about the use of the "pink slip" of the industrial commission?

5. That any operative patient be in the hospital at least by 4 p. m. of the day before operation so that the historian may obtain a history while the patient is in the mood. It was also suggested that history of the case accompany the patient if possible.

That copies of laboratory data be sent by the doctor with the patient or a note made that such work has been done, that the historian may get in

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touch with the laboratory to get the necessary data. (The laboratories have shown themselves willing to cooperate.)

6. Progress note sheet should be the first page of the chart, so that the doctor is reminded to make daily notes when necessary. The nurse should hand chart to doctor with a query as to progress, and the doctor himself fill in the record.

7. Consultation of any kind should be noted on the progress chart and if nothing else the signature of the consultant should appear with the floor nurse presenting it to the doctor or consultant.

8. Doctors whose cases go to autopsy should notify the historian of the same or have the undertaker do so, and an autopsy record should be made and given the hospital.

9. Charts should be signed on the floors if possible at the doctor's last visit to the patient, or if dismissed by telephone, at his earliest opportunity at the desk.

10. The historian has difficulty in classifying diseases and it is suggested that some qualifying statement be made in the diagnosis, viz: Appendicitis, acute, sub-acute, chronic, abscess, etc., or pneumonia, lobar or bronchial.

It is the feeling that by creating an "esprit de corps" among the staff to strive for better histories we can have better service in the hospital.

The above suggestions will answer most of the objections made on the histories by the inspectors.

In order to simplify records it was decided that at the next meeting of this committee a simplified chart be worked out by the committee and presented with a view that a multiplicity of papers, re-duplication of data, etc., be dispensed with. At the present time urine and blood constitute a page, and another specimen another full page. Laboratory reports give all the data already on the chart about the name, etc., of the patient and perhaps a few added lines of explanation. We wish to dispense with this.

R. J. STROUD,
Acting Secretary.

DEACONESS HOSPITAL STAFF MEETING

The Medical and Surgical Staff of the Arizona Deaconess Hospital met Monday evening, February 27, with twenty-eight in attendance, and two excused for illness. The minutes of the last Council meeting were read. It was moved by Dr. McIntyre and seconded by Dr. Tuthill that the motion which was laid upon the table at the last Council meeting be taken up for action, and that it be adopted but amended to read that "Staff members who have not attended seventy-five per cent of the regular meetings of the past year, are to be transferred to the Associate Staff at the end of the year." Carried.

The records committee reported upon the deaths of the past month, as follows: Case 1858 was a male, 77 years of age; entered the hospital the 18th of November and died January 5. Diagnosis of senility and fracture of the neck of left femur. There was nothing of special interest in this case. Records were fair.

Case 2010 was a male 43 years of age. Entered the hospital the 17th of December and died the 16th of January. Diagnosis of pulmonary tuberculosis and decubitis. Records are good, little else of interest.

Case 2119 is a female 62 years of age, entered the hospital the 5th of January and died the 8th of January. Diagnosis of fracture of 3, 4, 5, 6, 7, 8, and 9th ribs on the left side, fracture of left scapula, left humerus, right femur and multiple lacerations.

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tions and abrasions. The patient had no chance of life from the first. Fair record.

Case 2180 was a female 52 years of age, entered the hospital the 14th of January and died the 16th. Diagnosis was general peritonitis following gangrenous appendicitis. Patient had refused operation for four days and finally consented but it was too late. Good record.

Case 2165 was a male 48 years of age. Diagnosis of pulmonary tuberculosis and pleurisy with effusion on right side. Entered the 11th of January and died the 12th of January. Fair record.

Case 2115 was a male, premature. Failed to breathe.

Case 2082 was a male 51 years of age, entered the hospital December 28 and died January 3. Diagnosis of pulmonary tuberculosis and cystitis. Very good record, nothing else of interest.

Case 2079 was a female 21 years of age; entered the hospital December 28 and died January 3. Diagnosis intestinal obstruction. Patient was taken suddenly ill about middle of night of the 28th, with vomiting and pain in the abdomen. Pain was colicky in character and was not relieved by vomiting. There was marked rigidity and depression in the upper right quadrant. X-ray examination gave definite impression of obstruction, probably at the ileo-cecal region or involving the pelvic portion of the small bowel. Patient was operated upon under nitrous oxide and local anesthesia. Intestines were distended and protruded; many adhesions were found and relieved. Enterostomy was done by the method of Weisel. Abdomen closed, as the patient's condition was not good. Patient died the following day. No autopsy.

Case 2092 was a male, age not given. Entered the hospital the 30th of December and died January 9. Diagnosis of tuberculous meningitis.

Case 2304 was a male, age not given; entered the hospital the 1st of January and died the same day with fracture of the left radius, left tibia and fibula, left clavicle and 5th, 6th and 7th ribs on the left side.

Case 2093 was a male 18 years of age; entered the hospital December 30 and died January 12 with diagnosis of septicemia secondary to gun-shot wound of the knee.

The chairman of the records committee asked Dr. Felch to discuss these last three cases. DR. FELCH said that case 2092 had been first seen in Buckeye with diagnosis of abscess of right lung. X-ray examination at that time revealed fluid in the right chest. Patient made a slow recovery but the breathing was constantly labored and rapid.

He was then discharged from the hospital and nothing more was seen of him for two months. Dr. Felch was called to see him and found him in a stupor, head was thrown back, and could not talk coherently. He was brought to the hospital and died of tuberculous meningitis. Leuk. count 13,000. polys. 88%.

Case 2304 was a Mexican who had been run over by a truck. The whole left side of the body was crushed and there was no chance of recovery.

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Case 2093 had been shot in the left knee and had been cared for by a physician who probed the wound extensively. Dr. Felch said, not to criticize the man who had done this, that it was unwise to probe these wounds. The best thing was to dress them and wait developments. This knee was opened into and a large amount of pus was found and had to be opened the second and third times; a larger amount of pus was obtained. The final abscess extended practically the full length of the femur. Leuk. on December 31 was 40,600, 93% polys.

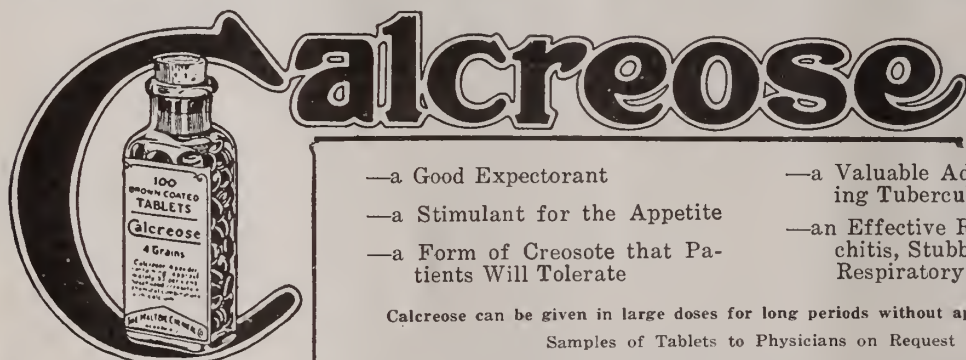
DR. GREER, chairman of the records committee, said that he wished to report that the records were improving, but there was still much to be desired. Consultation records are infrequently recorded, orders are not always written by the physician, and progress notes are infrequently made. He said that the records committee has been advised to review the records on the floors and therefore if the physicians find members of the records committee going through their records they must understand the reason and know that the records committee is merely attempting to do its duty.

Cases 2269, 2267, 2341, and 2420 are all to be reported at the program for the evening.

2341 was presented by DR. TUTHILL. This was a boy four and one-half years old. When first seen by the physician he was complaining of pain in the shoulder, more or less indefinite in character. On the second visit the physician got no further diagnosis than he did the first visit. The pain in the shoulder became worse and extended down the arm. There was considerable swelling which seemed to be more on anterior chest, in region of pectoralis major and anterior edge of axilla. There was no redness or heat about the region of swelling. The

child had been exposed to chicken-pox and had a cold for a few days. Diagnosis seemed impossible at this time. Child was brought to the hospital and there was slight redness discernible at lower anterior flap of axilla. X-ray showed no lung or bone involvement. A very slight scratch was observed on the little finger of the same hand. The child had had normal diseases of childhood. The parents were both tuberculous and the mother was thyrotoxic. On examination the boy was found to be pale, sallow in color and definitely anemic. He was much underweight but about the right height. The radiographic examination of this boy's chest showed enlargement of the heart with no evidence of bone involvement in the ribs and shoulder girdle. On the day of admission the temperature was 102.5 and small pustules appeared on the face and abdomen. Diagnosis of varicella was made. The child was given nitrous oxide and ethylene and an incision was made parallel to pectoralis major of left side, forceps worked underneath the muscle and small amount of pus was found; it seemed to be confined to the adipose tissue of axilla. The leuk. count was 10,600, 83% polys. Urine had heavy trace of albumin, positive for acetone and diacetic acid, and few granular casts. Smears from the pus showed streptococci. Blood count on the 6th showed a profuse growth of non-hemolytic streptococci. Child had a stormy course and died on the 7th, four days after admission. The conclusion was that infection had entered through the slight scratch of the finger and produced a lymphangitis of the left arm and axilla and septicemia. Child was given boric acid compresses, glucose and soda, strychnine and gentian violet intravenously.

DR. BERGER said that he thought this was a very interesting case and believed that it was similar to



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the case of President Coolidge's son who died a few years ago. He thought that it mattered not what the treatment might have been, death was inevitable.

DR. BROCKWAY asked if the finger had pus at any time. Dr. Tuthill replied that after the patient was brought to the hospital the finger did have a small amount of suppuration. Dr. Brockway said that fifteen years ago, during a period of about ninety days, he had seventeen cases of lymphangitis, and in each instance he was able to find a lesion of the extremity, sometimes several weeks old.

DR. COUCH asked if the infra red lamp would have done this patient any good. Dr. Tuthill said that it might have as he did not know of any other condition the lamp would help.

Case 2420 was reported by DR. MCINTYRE as follows:

Woman, 52 years of age, has had three children, all living and well. Husband living and well. Mother and father both died at a very old age, with no apparent disease other than senility.

Patient has been strong and well all her life, having had very little occasion to visit any physician.

Four weeks ago had some neuritis in face, together with some backache in lumbar region. She was advised to have teeth examined under x-ray. Two teeth proved to have pus pockets at base. Teeth were removed. Patient worked very hard last week during the Community Chest drive. Monday morning of this week she awakened with severe aching in lower part of back, complained of soreness over entire body and had considerable headache. Temperature 101. Diagnosis of influenza was made. Patient felt better during the day and was put to bed having very profuse perspiration due to anti-influenza treatment. That night patient felt very comfortable. Next morning at about 4 a. m. her husband awakened because of her turning and rolling about in bed. He spoke to her several times, but was unable to arouse her. At 8:00 o'clock I saw the patient, at which time she was apparently unconscious, although turning and throwing arms and legs about. Muscles of upper thorax and neck were not apparently stiffened. Pupil reaction was normal but other reflexes I was unable to get because of constant movement of patient. Patient was brought to the hospital at 2:00 p. m. with tentative diagnosis of meningitis.

Urinalysis showed evidence of acute nephritis, albumin and casts being present. There were many hyaline and granular casts, diacetic acid and acetone present. Leukocyte count 23,600. Hemoglobin 85%, large lymphocytes 13%, and polynuclears 87%. When spinal fluid was examined it showed 14,400 cell count. Smears of fluid showed many diplococci. 30 c. c. of anti-meningococcus serum was injected into spinal canal. Patient died at about 2 a. m.

This case is being presented to the Staff because of the extreme rapidity with which this patient developed this infection and died. Examination of blood showed it to contain many meningococci. The ordinary meningitis infection is rather slow and particularly so in adults and it is very rare to find the germ in the blood stream proper. This case showed the blood stream to be filled with germs.

DR. MILLS said that at the time of the examination of this patient he had not looked up the literature of this disease; he has since found that in about 25% of the cases the diplococci are found intravenously. He said that the anti-toxin might be given intravenously as well as intra-spinously.

DR. GREER asked if there was any recent inform-

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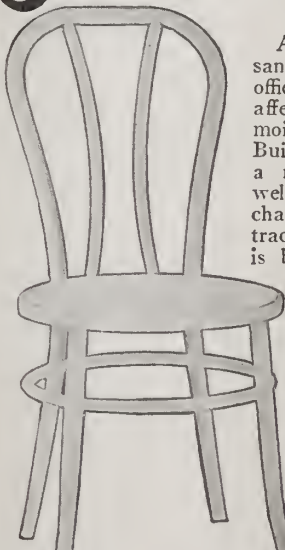
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ation regarding the epidemiology of this disease. Dr. Mills replied that he knew of nothing new; the organism probably reaches the blood stream by penetrating the mucous membrane of the nose.

Case 2267 was reported by DR. McCALL. This was a male 69 years of age who came here from Akron, Ohio, arriving on the 26th of January. He was able to walk but when he arrived at the home of friends he was nearly exhausted and had considerable difficulty in breathing. He was taken to the doctor, and then sent to the hospital. Patient had lost a large amount of weight. He had been hospitalized in Akron in December for ten days and stated that he had been told that he had pleurisy. One brother died of carcinoma of stomach and his mother died of carcinoma. Extensive history was not available. Patient was extremely emaciated, loss of subcutaneous and muscular tissue. He appeared very ill and cachectic. The eyes were sunken and pupils reacted sluggishly. Nose normal, mucous membrane fairly good color, teeth were poorly kept, breath was foul, throat was granular and red, tonsils small and buried, voice husky, veins in the neck were prominent with visible irregular pulsations of carotids. Thyroid small and atrophic, slight cervical adenopathy. The chest was flat and thin, more marked on the left than the right. The expansion of the lungs limited more on left. The upper two-thirds of the left lung showed complete absence of breath sounds with more or less involvement of the lungs. There were few rales. The apex beat of the heart was under the 6th rib, extending to the anterior axillary line, right border was under sternum. The sounds are weak, very irregular. The aorta region is dull to the left of the sternum. The abdomen is flat and sunken and doughy to touch and no areas of tenderness. The liver edge is palpable just below the costal margin. No edema of feet and ankles; the reflexes were not abnormal. The x-ray examination shows extensive densities at the lung hilus of each side with an area of total density over the left base. This latter density resembles a pocket of fluid. Above that is an area of active lung infiltration. The shadows are not those of tuberculosis.

Under novocaine a needle was introduced into the lower left chest but no fluid was obtained. Consultation was held and the facts as outlined above were confirmed. Leuk. 20,900, 85% polys. No tubercle bacilli were found in the sputum on several examinations. The urine showed a trace of albumin and many granular casts. The patient's condition gradually failed and he died on February 3rd. Patient was admitted January 26. Diagnosis was malignancy of lungs. Dr. McCall said it was very much to be regretted that the autopsy was not done. The diagnosis otherwise was but a good guess.

Case 2362 was reported by DR. HAMER in the absence of DR. BANNISTER due to illness. This was a male five and one-half months of age. On February 4 he was taken suddenly ill at 3 o'clock on Sunday morning; it cried continuously as if in pain. The patient had a temperature of 104 and there was a slight redness of the right ear drum. The baby continued to cry throughout the day. It was seen again during the evening, the temperature 104 plus and swelling of gum over tooth. The baby was seen again the next morning at 10 o'clock and the breathing was shallow and very rapid. The baby was semi-stuporous and appeared extremely ill. The temperature was 103 plus. There was suspicion of slight changes in the chest but nothing more definite made out. There was no rigidity of neck, no pupillary changes, no Kernig sign. Baby was sent to hospital and x-ray of chest ordered immediately. Diagnosis of cerebro-spinal

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meningitis was made on the spinal fluid. Examination by Dr. Hamer showed: fontanelles almost closed, no bulging of left ear drum but it is slightly red. Pupils small, regular and react to light. Sclerae are clear; no ocular deviations or ptosis; marked photophobia. There is a slight nasal discharge; mouth is edentulous; tongue dry and coated; throat is red; no membranes nor ulcers; neck is stiff, somewhat extended; no adenopathies; slight opisthotonos. The lungs showed no definite abnormalities; heart is not displaced, sounds are rapid, regular and good quality and no murmurs. Abdomen: there was some distension, but otherwise negative. The child cries violently when moved. There is a distinct Kernig sign bilateral, more marked on the right. No paralysis or paresis; reflexes hyperactive more noticeable on the right than on the left. The hands at times show definite clonic seizures, lasting for few seconds. The skin is pale, dry and warm and good turgor. Impression: epidemic meningitis, left otitis media and acute catarrhal bronchitis. Spinal fluid was under increased pressure. Spinal count 2,000. Smears show numerous intra-cellular diplococci morphologically meningococci. On the next day the spinal count was 18,900 with many pus cells, bacteria absent. On the 8th there was 16 c.c. of fluid obtained with 4,900 cells and many pus cells, no bacteria. On the 9th the fluid was cloudy, 1,100 cells. Temperature suddenly dropped from 105 to 100 on the 10th. The baby made an uneventful recovery and the father reported a few days ago that the child appeared entirely well. The baby had 15 c.c. of anti-meningococci serum on the 6th and again on the 7th, 8th and 9th. Dr. Hamer said that prompt recognition of the disease and early treatment probably was responsible for the saving of the life.

Case 2213 was reported by DR. HAMER in the absence of DR. ELLIS. This was a male 40 years of age. Patient was first seen at 11 o'clock on the 19th of January and sent to the hospital the next day. He had a temperature of 100 and pulse 80. Complained of aching and pain throughout the body. The first diagnosis was influenza. At 6 p.m. of that evening the physician was called again and found him unconscious and delirious, also tearing at his clothing. Diagnosis was then made of acute meningitis. Spinal puncture was done immediately after arrival at the hospital and he was given meningococcus serum daily for six days, 30 c.c. at a dose. After the third treatment he was greatly improved and from then on he made an uneventful recovery. Examination records show that the patient had a slight deafness, particularly in right ear. Teeth in very poor condition, pyorrhea and pus around the roots of several. Heart and lungs normal. Kidneys show a trace of albumin. He also had slight attacks of rheumatism.

Case 2129 was reported by DR. O. H. BROWN. This will be published in the journal at a later date.

Case 2269 was reported by DR. HAMER. This was a female 35 years of age. She entered the hospital apparently in severe pain, she had an anxious expression. There was a history of having a burn on side of palm of hand one week previous, with swelling around the burn, before entering the hospital. The head was negative, eyes negative, ears had no discharge, nose grossly negative, the mouth, teeth, tongue and pharynx negative. Heart and lungs were negative. Apex beat of heart in the fifth interspace. Abdomen had no palpable masses, no areas of tenderness and no distension. Extremities were negative except for the burn on the left hand, one cm. in diameter and entire hand was edematous with little change in color. Edema and

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induration extends to middle of forearm and was extremely painful over swollen area and hand was completely stiff. Some blebs appeared over hand and spots also appeared over thumb and forefinger. Temperature 101 to 104. Patient was in state of shock before entering hospital. Urine showed heavy trace of albumin and granular casts. Leuk. 28,800, 96% polys. The smears taken from the hand showed streptococci and hand was placed in hot mag. sulph. solution continuously. Patient gradually failed and expired on the third day after admission. Diagnosis of streptococcic septicemia from the burn on the hand.

There being no further business, the meeting adjourned at 9:45 p. m.

ORVILLE HARRY BROWN, Sec'y.

PERSONALS

DR. H. I. McNEILL, city health officer, Mesa, Ariz., has been confined to home for a week or two, by illness.

DR. AND MRS. JOHN W. LYINN, of Prescott, after attending the convocation of the College of Physicians in New Orleans, have gone on the Caribbean tour of two weeks, which includes a trip to Panama.

DR. BERNARD L. WYATT, of Tucson, Ariz., was in attendance at the College of Physicians in New Orleans arriving in time for the convocation exercises, to receive his fellowship in the College.

DR. LEROY S. PETERS and DR. M. K. WYLLDER, of Albuquerque N. M., fellows of the College of Physicians, were in attendance at the Congress on Internal Medicine, held by the College, in New Orleans, the first week in March.

DR. W. WARNER WATKINS, of Phoenix, Ariz., attended the College of Physicians meeting in New Orleans, the first week in March. Dr. Watkins was the first physician in Arizona to receive fellowship in the College.

SMALLPOX is quite prevalent in at least two counties of Arizona, there being a number of cases in Maricopa County and some in Yuma County. Vaccination is being recommended by the health officers throughout the state, being given without charge in several of the larger centers.

DR. F. C. GOODWIN of El Paso, has announced the opening of offices at 516 Mills Bldg., with practice limited to injuries and diseases of bone, tendons, joints and physiotherapy.

DRS. HOLMES AND RANDOLPH, of Phoenix, are installing the first electrocardiographic equipment in Arizona. This equipment is made by the Victor X-Ray Corporation of Chicago and is designed for office use, as well as being portable for use at hospital and residence.

BOOK REVIEWS

The Normal Diet.—A Simple Statement of the Fundamental Principles of Diet for the Mutual Use of Physicians and Patients. by W. D. Sansum, M.S., M.D., F.A.C.P., Director of the Potter Metabolic Clinic, Department of Metabolism, Santa Barbara Cottage Hospital, Santa Barbara California; second edition; The C. V. Mosby Company, 1927; \$1.50.

There are 136 pages of instructions, tables, index, bibliography, etc., of valuable material, helpful and understandable to both the physician and the patient. Sansum is an original thinker. All physicians should be familiar with his ideas, many of which are proving to be correct.

Canadian Medical Directory and Physician's Handbook: tenth edition; 1927; copyright, Canada, by R. Villcourt, M.D., Publisher.

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and sells in cloth at ten dollars. As well as giving lists of physicians, it gives druggists and dentists. In the larger cities the physicians are listed by streets. There is considerable information about the medical schools, the practice act, the narcotic act and other subjects of interest to physicians.

Nutrition and Diet in Health and Disease, by James S. McLester, M.D., Professor of Medicine at the University of Alabama, Birmingham, Alabama; W. B. Saunders Company, Philadelphia and London, 1927.

This is a sane book devoted exclusively to the question of diet. There has been such an amount of "bunk" written on diet that a wide distribution of such a book as this is needed to counteract the evil influences of the "bunk." Faddists have long held sway in this all-important field. It is time that sound sensible principles in diet should be gotten into the hands of the medical men. This work should serve the purpose admirably. It is recommended as a necessary part of every physician's armamentarium.

Diseases of the Skin, by Henry H. Hazen, A.M., M.D., Professor of Dermatology in the Medical Department of Georgetown University; Professor of Dermatology in the Medical Department of Howard University; sometime assistant in Dermatology in the Johns Hopkins University; member of the American Dermatological Association; third edition; two hundred forty-eight illustrations, including two color plates; The C. V. Mosby Company, St. Louis; \$10.00.

The author has designed this book for medical students and for general practitioners. It is not an encyclopedia of skin diseases. Consequently, it is not as bulky as are more complete works. To reduce the size the bibliography has been omitted. The cuts are

excellent. The type is easy to read. The subject matter is arranged in the conventional style so that treatment, symptoms, definition, or whatever information is sought, is easy to find. The publishers' work deserves especial commendation.

Under anaphylactic dermatitis is discussed those conditions formerly classed as eczemas and which are due to skin sensitization to food and other proteins. A brief half-page is devoted to this subject. Nothing is said of the skin tests to ascertain the exact causes nor of the necessity of eliminating the causes in order to effect a cure. Future editions will certainly discuss this subject more thoroughly.

International Clinics, Volume IV, Thirty-Seventh Series, December, 1927; edited by Henry M. Cattell, A.M., M.D., Philadelphia; J. B. Lippincott Company, Philadelphia and London.

The contributions of this volume are very largely of the type designated as travel clinics—in the main from Europe.

An exceptionally interesting group of subjects is discussed by men in positions to speak authoritatively. One of the most helpful articles in the book is entitled "Some Remarks on Stethoscopy," and is by H. I. Bing, M.D., of Copenhagen.

Bing lectured especially upon diagnostic methods which he thinks are not adequately treated in the text books. He emphasizes the importance of using careful inspection of the patient. He says it is possible very often to see a pleuritis, as the diseased side arches out and the intercostal furrow is eliminated. It is possible to feel, with the finger tips, the lungs, the liver, the heart, etc. This, however, he explains, takes an endless amount of practice.

In discussing percussion, he divides the subject into three heads: the spreading of the percussion sound; the direction of the sound; and, the strength



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of the percussion beat. The pleximeter finger should be correctly placed and the stroke should be light and in the proper direction. The article must be read to gain an understanding of Professor Bing's teachings.

A second article well worth the reading is on "The Middle Ages," by John Rathbone Oliver, A.B., Ph.D., M.D. This deals with medieval medical history and is highly instructive.

Duodenal ulcer is discussed by both Wilkie of Edinburgh and Paterson of London. The article by B. Sherwood-Dunn of Nice, France, on basal metabolism, is of unusual merit.

Perhaps one of the most interesting and instructive papers of all is by Dr. William Lentz, of Brooklyn, on "Consideration of High Blood Pressure; Small Lungs." He goes into the subject in a manner which is exhaustive and enlightening. There are other valuable contributions in this number.

An Introduction to Neurology, by C. Judson Herick, Professor of Neurology in the University of Chicago; fourth edition, thoroughly revised; W. B. Saunders Company; 1927.

This book is just what its title implies. As one must walk before he runs, the physician who wishes to know neurology must first be certain of a faithful grounding in elementary facts. Most physicians must do more or less neurological work and, no matter how well one may have known the architecture of the nervous system at one time, constant review is necessary. This book is written in a simple, easily understandable style.

The Surgical Clinics of North America; October, 1927; Volume seven, Number three; Pacific Coast Surgical Association Number; W. B. Saunders Company; Philadelphia and London.

This Volume is dedicated to the memory of Lord Lister, on the Centennial of his birth. The six pages devoted to the tribute to Lister, by Dr. Edgar Lorrington Gilcreest is choice reading. Dr. Gilcreest entitles his contribution, "Lord Lister and the Renaissance of Surgery." This short article should be in the hands of all thinking persons of the world. The lay public has all too little opportunity to know what scientific medicine is doing for it. Articles so beautifully written as is this one, cannot fail to impress the public.

A goodly number of highly interesting surgical subjects is discussed in this number. Cancer of the pelvic colon and rectum, cancer of the colon, cancer of the stomach, carcinoma of the thyroid, sarcoma of the thyroid, radical amputation of the breast with the cautery, diaphragmatic hernia, exophthalmic goiter, splenic anemia, and meningioma are a few of the many subjects discussed.

Diseases of the Mouth, by Sterling V. Mead, D.D.S., Professor of Oral Surgery and Diseases of the Mouth, Georgetown Dental School; Professor of Diseases of the Mouth, Georgetown Medical School; Oral Surgeon to Georgetown Hospital; Dental Surgeon to Providence Hospital; Consulting Oral Surgeon to Casualty Hospital; Consulting Dental and Oral Surgeon to Shady Rest Sanatorium, etc., Washington, D. C.; with 274 original illustrations in the text and 29 full-page color plates; The C. V. Mosby Company, St. Louis; 1927; \$10.00.

This is a handy, concise reference volume on mouth diseases which every surgeon working in this field should have.

The illustrations are an outstanding feature. The artist might criticize the colors of the plates but they serve admirably in portraying their lessons. The black-and-whites are unusually well reproduced. The descriptive matter under each figure is concise and to the point.

The author has a splendid use of the English lan-

guage, and so gets his thought into the fewest possible words without sacrificing clarity.

The publisher has done a creditable piece of work in his field.

ABSTRACTS FROM CURRENT JOURNALS

INTERMITTENT DUODENAL STENOSIS.—This is a very excellent presentation of a condition which has not been given its due merit of attention. Chronic duodenal stenosis admits of division into three types: (1) That of the bulb; (2) that of the second and third portion, due to bands; (3) duodenalarteriomesenteric ileus due to mesenteric drag. It is the latter two types that the authors write, the so-called periodical "bilious attacks," with the typical migraine symptom-complex. The roentgenologic examination is the most important factor, and the technic of this is quite important. The most important point in technic is that the patient must be examined *during the attack*, else the findings are very likely to be negative, and a diagnosis of cholecystitis, gastric or duodenal ulcer, appendicitis or gastric neurosis, be made. Thirty-eight cases are reported, in which complete x-ray examinations have been made, repeatedly on most of them. The radiographic reproductions show the intermittent dilatation of the duodenum, and illustrate how the findings will be negative unless made at the proper time.

Intermittent Duodenal Stenosis. Richard Hayes, M.D., F.A.C.P., D.M.R.E. (Camb.), Radiologist, Longview Memorial Hospital, and Arthur B. Shaw, M.D., F.A.C.S., Longview, Wash. Northwest Medicine, Jan. 1928, p. 6.

INTERLOBAR EMPYEMA.—Empyema frequently begins as a small localized focus between the lobes of the lung. Empyema occurs in from two to five per cent of all pneumonias. It is often difficult to diagnose and more difficult to locate. X-ray examination is necessary for localization in the early stages. It is necessary to study the patient in two or more planes, one of which must be horizontal. A special technic is described for handling bed-fast patients.

Postpneumonic Interlobar Empyema.—By George W. Norris, A.B., M.D., and David R. Bowen, M.D., Philadelphia, Pa. The Atlantic Med. Jour., Feb., 1928, p. 284.

MALIGNANCIES ABOUT THE HEAD.—This paper, written for a general medical body, describes the procedures used in handling malignancies of the eye, ear, nose and throat. The technic of electrothermic methods and irradiation by radium and x-ray are described. Radiation is always indicated wherever and whenever a malignant process is found, no matter what other method is used in conjunction. The author uses the so-called "saturation" method of x-ray dosage, applying small doses of high-voltage x-rays at short periods until a hundred per cent dose has been given and then maintaining this saturation by subsequent irradiation for several weeks.

In carcinoma of the skin about the face electrothermic coagulation and radiation are used. In lip carcinoma, electrocoagulation and buried radium are used. In epithelioma of the skin of the auricle, electrothermic methods and radiation are indicated; if the cartilage is involved, removal of the auricle by electrocoagulation and radiation of the cervical lymphatics. Malignancies in the mouth are destroyed by electrocoagulation, followed by buried radium and frequently by x-ray.

Electrothermic Methods, Roentgen Rays and Radium in the Treatment of Malignant Diseases of the Eye, Ear, Nose and Throat. J. Thompson Stevens, M.D., Montclair, N. J. Jour. Med. Soc. of N. J., Feb. 1928, p. 99.

CHOLECYSTOGRAPHY.—A clear statement of the present status of cholecystography as practiced by the majority of radio-ogists, is made in this paper. At the Mayo Clinic the oral method of dye administration is followed, using plain gelatin capsules immediately after the evening meal, which must be free from fats. The factors necessary for diagnosis are (1) absorption of the drug, (2) excretion of the drug by the liver, (3) patency of the cystic duct, (4) a resistance mechanism at the valve causing the gall-bladder to fill, and (5) ability of the gall-bladder to concentrate the dye.

The most frequent and reliable sign of disease is the failure of the gall-bladder to cast a shadow in any of the serial roentgenograms; this evidence was confirmed in 95.4 per cent of the cases at operation; such a finding indicates one or more of the following: (1) occlusion of the cystic duct; (2) contracted gall-bladder with obliterated lumen; (3) impaired hepatic secretion of the drug; (4) inability of the gall-bladder to concentrate; (5) injury to the mechanism of discharge; (6) congenital absence of the gall-bladder, or (7) failure of the drug to be absorbed. In the last instance the drug can be detected in the bowel. The next most reliable sign is persistent faintness of the shadow. Differentiating between normal and abnormal concentration is more uncertain. Of the cases in which a positive diagnosis of gall-bladder disease was made, ninety-three per cent were confirmed at operation. On the other hand, of the cases showing normal response, only 69 per cent were found normal at operation, demonstrating that in a test for functional ability, such as this is, we may still have normal function with definite pathology present.

The Present Status of Cholecystography. B. R. Kirklin, M.D., Section on Roentgenology, Mayo Clinic, Rochester, Minn. Minn. Med., Jan., 1928, p. 28.

FREQUENCY OF RIGHT LUNG TUBERCULOSIS.—An interesting study of 850 patients, with respect to the relative frequency of right or left lung involvement, is reported from this sanatorium. By combining the physical and x-ray findings, it was found that the right lung showed the oldest and most extensive lesions in 512 cases, or 60.2 per cent, while the left lung was involved in only 388 cases, or 39.8 per cent. A further significant finding was the frequency with which cavities were shown by x-ray which had not previously been discovered by physical examination. Only fifty per cent of the cavities shown by x-ray had given physical evidences of their presence.

The Frequency of a Tuberculous Involvement of the Right Lung as Determined by Physical Examination and X-Ray Findings. By L. M. Hines, M.D., Blue Ridge Sanatorium Sanatorium, Va., Va. Med. Monthly, Jan., 1928, p. 649.

UTERINE CANCER.—From a statistical and pathological standpoint, radiotherapy is the treatment of choice in all cases of carcinoma of the cervix. Janeway's statistics of 1919 are typical; of five thousand cases collected, only 34.2 per cent were operable, leaving 66 per cent for whom surgery had nothing to offer; of the patients operated, there was a primary mortality of 18.2 per cent, and of those who survived only 21 per cent passed the five year period. Pathologically, carcinoma of the cervix, tending to remain localized and being radiosensitive, offers an excellent opportunity for radiotherapy, and results have proven that this is the method of choice. The plan of treatment in individual cases is usually to apply radium in three different ways: (1) by the use of vaginal applicators of different types; (2) by capsules in the cervical and uterine canals, and (3) by burying gold

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filtered seeds in the lesion. The whole pelvis is then exposed to four high voltage x-ray treatments. In a group of 117 cases treated in 1922, there were fourteen early or favorable cases of whom nine or 64.3 per cent are alive; there were twenty-one borderline cases, eight of whom or 38 per cent are alive; there were eighty-two advanced cases, of whom thirteen or 15.8 per cent have now passed five years. These results were obtained without mortality from treatment. The results in the entire group show a net salvage of 25.6 per cent, which is better than the average of surgical results on the operable group..

Uterine Cancer: Is the Outlook Better for the Patient? Wm. P. Healy, M. D. New York. Med. Jour. & Rec., Jan. 4, 1928, p. 21.

ROENTGEN THERAPY IN HYPERTHYROIDISM.—This author has refrained for ten years from publication of results on radiation for hyperthyroidism, in order to collect a sufficiently large series of cases, with sufficient time after treatment to check results. His observation tends to the conviction that the thyroid gland belongs to the radio-resistant, rather than the radiosensitive, organs and requires a relatively heavy radiation to produce cellular changes. In the cases reported, two-thirds to three-quarters of a unit erythema dose was applied at monthly intervals, the fractional dose method having been found too unreliable. Such voltage and filter are used as will result in the delivery of fifty per cent of the surface intensity to a depth of three or four centimeters. Two portals of entry are used. In favorable cases, the number of treatments is four or five and approximately six months elapsed between beginning of treatment and satisfactory conclusion.

In the series of 328 cases forming the basis of this report, there were 263 of Graves' disease, 16 of adolescent goitre, 30 of adenoma and 19 of colloid and substernal goitre.

The author's experience indicates, (1) cases of adolescent goitre with hyperfunction can be relieved in three to five treatments. (2) In tumors with increased basal metabolic rate, three or four treatments will usually reduce the hyperfunction and make the case safer for operation. (3) Iodine is temporary and secondary exacerbation following its use is difficult to control. (4) Roentgen therapy has a definite place in the treatment of Graves' disease; 84 per cent of the cases in this group showed definite improvement, 66 per cent being symptom free. Slight symptoms may persist for a long time in isolated cases.

Roentgen Therapy in Hyperthyroidism. A Report of 328 Cases of Tyrotoxicosis Subjected to X-Ray Treatment. William H. Meyer, New York. Med Jour. & Record, Feb. 1, 1928, p. 137.

CANCER OF THE BLADDER.—As illustrating the modern methods of attacking cancer of the bladder a case is briefly cited; in this case an obvious cancerous tumor of the bladder, proven by biopsy to be carcinoma, was first treated by fulguration down to its base; then 50 mgm. of radium element was applied to the ulcerated area, held in place by means of a wire applicator; later a series of high voltage x-ray treatments were applied. This patient, treated in 1919, is still well, without sign of recurrence. In a general way, all such lesions are similarly treated, except that radium emanation is implanted instead of trying to hold a capsule of radium element in contact with the lesion. Histories of eight patients are given, all of them successfully treated.

Modern Methods of Treatment and Results in Cancer of the Bladder. Bransford Lewis, M.D., B. Sc., F.A.C.S. and Grayson Carroll, M.D., St. Louis, Mo. Texas State Jour. Med., Jan., 1928, p. 574.

TRUTH ABOUT MEDICINES

ARC Epilepsy Remedy.—The medical profession has recently been widely circularized by the American Remedies Company of Rockford, Ill. The medical profession is asked to use the firm's "Reliable Remedy for Epilepsy" and is told by the firm that it does not "feel justified" in exposing its formula—that is, the medical profession is asked to prescribe a preparation of secret composition. The A. M. A. Chemical Laboratory analyzed the ARC Epilepsy Remedy and found it to consist of capsules, each containing about 1½ grains of phenobarbital (luminal) and a considerable amount of a laxative (emodin-bearing) drug and a small amount of dye. Is it possible that there are physicians who are so gullible and forgetful of their duty to their patients that they will give a dangerous drug in unknown dosage? A physician who uses or prescribes "ARC Epilepsy Remedy", giving so dangerous a drug as phenobarbital in unknown dosage, may lay himself open to a charge of doubtful practice. (Jour. A. M. A., October 1, 1927, p. 1167.)

Asthmolysin.—Asthmolysin is, according to the advertising, "a combination of the suprarenal and pituitary hormones in distinct proportions", prepared by a "special method". There appears to be no scientific evidence to warrant the use of pituitary in bronchial asthma. Epinephrine is frequently used in some forms of asthma, but may be had pure and need not be prescribed in a secret preparation containing an undetermined amount. The 1927 Asthmolysin circular consists of testimonials from 121 physicians, of whom thirty-five are Fellows and thirty-three are members of the American Medical Association, while fifty-three are neither members nor Fellows. Such testimonials, given for a semi-secret preparation of unscientific character, are no credit to those members of the supposedly learned profession that gave them. (Jour. A. M. A., October 1, 1927, p. 1170.)

Concentrated Orchitic Solution (Orchitic Substance Concentrated-Cousineau) not acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Concentrated Orchitic Solution, also called Orchitic Substance Concentrated (Cousineau), is marketed by the California Endocrine Foundation Laboratories, Long Beach, California. According to the label on the specimen it is "A Preparation of Orcho-Plasm Ramm Derivative" while, in an advertising booklet, it is stated that it "consists of the small, hard, testicular gland of the healthy, young, live goat, ram or monkey," and "contains saturation of the whole gland substance in solution ideally compounded." The Council found that many unwarranted and unsupported claims were made for the preparation and, hence, declared it inadmissible to New and Non-official Remedies. When the Council's statement was sent the California Endocrine Foundation Laboratories, the firm submitted a proposed revision of an advertising booklet. In the advertising, the general impression is given that gland implants, such as those of Voronoff, are highly effective, and that the manufacturer's product, administered hypodermically, will give equally good or better results. Even if the proposed revision of claims is made, the preparation is still unacceptable for the reason that the manufacturer has not submitted any scientific evidence for the therapeutic usefulness and efficacy of the product. The Council, therefore, declared Concentrated Orchitic Solution (Orchitic Substance Concentrated-Cousineau) unacceptable for New and Non-official Remedies. (Jour. A. M. A., October 8, 1927, p. 1267.)

The A-Moy Anti-Fat Fake.—The A-Moy Company is a trade name used by one Charles E. Cessna, of whom the Chicago Tribune once said, he "at different times in his business career has been a loan

shark, patent medicine vendor, and land promoter." Cessna's present anti-fat quackery consists in selling A-Moy Reducing Pills, which, according to a report, have been responsible for at least one death. (Jour. A. M. A., October 8, 1927, p. 1267.)

Liver Diet in Anemia.—While liver seems to be presenting increasing evidence of its value in the treatment of anemia, physicians everywhere are finding it difficult to keep patients contented and happy while they are taking it. This state of affairs is due, partly, to the fact that few people can cook liver in any other way than by frying. Recipes taken from English and French sources include many ways of preparing liver for the table. (Jour. A. M. A., October 15, 1927, p. 1335.)

Fever-Producing Methods in Treatment of General Paralysis.—Compilations have been made of the results obtained in cases of general paralysis treated with malaria. Treatment has also been applied to patients with syphilis of the central nervous system. A microscopic study of the brain following treatment by malaria leads to the conclusion on the part of the investigator that, in some cases, in the future the term "recovery" rather than "remission" will be justified. Relatively little has been reported during the past year concerning relapsing fever, or sodoku, as a therapeutic measure in neurosyphilis. It seems likely that, if infectious disease methods are to persist, a contest might arise between malaria and sodoku. Possibly the inoculation with an infectious disease will not continue to be necessary in the production of therapeutic fever. Reports have been published on the production of fever for treatment in general paralysis by the use of injections of foreign protein. The method has many advantages and the few cases on record give promise of good results. (Jour. A. M. A., October 15, 1927, p. 1337.)

Peruna—Ancient and Modern.—The Eighteenth Amendment gave a great stimulus to one branch of the "patent medicine" industry—that devoted to the exploitation of alcoholics sold under the guise of home remedies. Originally containing about 27 per cent of alcohol and very little else, the use of Peruna as a beverage in those parts of the country that were at that time nominally "dry" was notorious. Cases of acute and chronic alcoholism, and even, in some cases, of death from its use are matters of record. In 1905, the sale of Peruna to Indians was prohibited. In the same year the Bureau of Internal Revenue classed Peruna as an alcoholic compound advertised and sold as a medicine, but without the addition of drugs in sufficient quantity to change materially the character of the alcoholic liquor. Then the formula of Peruna was changed and sufficient senna added to satisfy the Internal Revenue Department that Peruna could no longer be used for beverage purposes. At that time the alcohol content was cut down from 27 per cent to 20 per cent. When national prohibition was enacted, the alcohol content of Peruna was further reduced to 12 per cent. Now, within the past few months, another change has taken place. The manufacturers have added 6 per cent alcohol and have taken out the senna! They have also taken out golden seal, which for some years has been one of the alleged ingredients; on the other hand they have added wild cherry, gentian and potassium iodide. The theory under which alcoholic "patent medicines" are supposed to be tolerated by the Internal Revenue Department is that they shall contain the minimal amount of alcohol possible. Just why the manufacturers of a nostrum with a history behind it such as Peruna, should have been permitted to increase the alcohol content of their preparation 33 per cent is another of

those mysteries that only government bureaus can explain. (Jour. A. M. A., October 22, 1927, p. 1444.)

Carl C. Lantz—Quack.—For many years Carl C. Lantz of New York City and Atlantic Highlands, N. J., has been quacking it through the mails. The Cosmopolitan Magazine for July, 1906, contained an advertisement for "The Adonis," sold at that time by Mr. Lantz, who was trading as the Lantz-Adonis Co., in New York City. The Adonis was said to preserve and increase mental, physical and genital vigor. Vanity Fair for April, 1916, contained an advertisement of four nostrums put out by Lantz, who at that time operated under the trade name of C. C. Lantz Laboratories. The preparations were "Lantz Face Balm," "Lantz Hair Life," "Lantz Foot Tingle," and "Lantz Riggs Remedy." In 1918 he offered "Lantz Absorbent Pastilles," which were sold as "the modern remedy for the prostate gland, the seat of sexual weakness." He also offered the "Lantz Supporter" and his "Vacuum Congestor," a device alleged to be sold as "a means to develop, strengthen and enlarge shrunken or naturally small organs." On October 10, 1927, the Postmaster General issued a fraud order against Carl C. Lantz, covering both the New York and the Atlantic Highlands, N. J., addresses. (Jour. A. M. A., October 29, 1927, p. 1534.)

Di-Citurin.—In an advertising circular, this product is said to be "Mono Potassium Diacetyl Citrate" and claims are made for its action that by no stretch of even a lively imagination could seem to be inherent in a substance of such composition. The report of thirty cases of hypertension given in the advertising, is far from being sufficiently detailed or extensive to be convincing. In vain one looks for Di-Citurin among the agents described in New and Non-official Remedies. This may be taken to mean that it is unacceptable to the Council on Pharmacy and Chemistry, or that it had not yet been submitted to or passed on by the Council. In either case it is well for the physician to refrain from using it until it has been passed by the Council. (Jour. A. M. A., October 29, 1927, p. 1537.)

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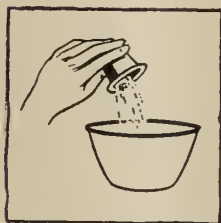
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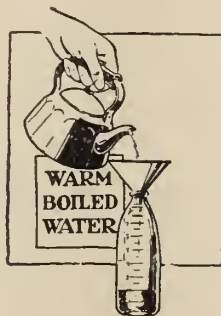


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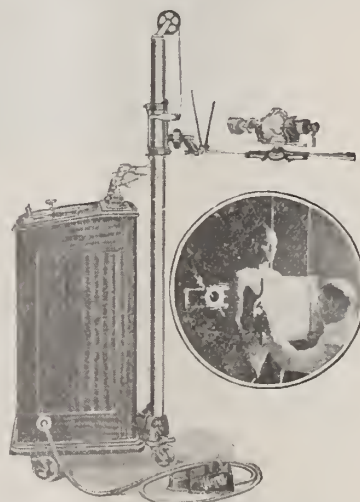
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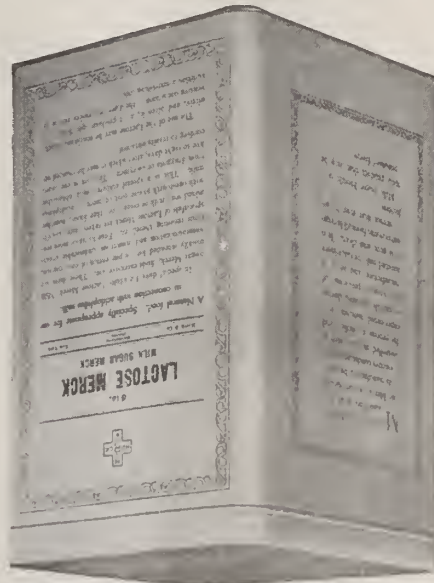
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DIABETES

FREDERICK M. ALLEN, M. D.,
New York, N. Y.

(Clinical lecture before the meeting of the Medical and Surgical Association of the Southwest, at El Paso, November 2-5, 1927.)

Although I have come from the far east for this particular meeting, I feel that I am one of you because, by reason of education and long residence in California, I am very well acquainted with the western country and western people, and therefore consider you as friends.

I prefer to talk on diabetes today because it makes a somewhat more logical line of attack when given in advance of the subject of Hypertension, on which I will speak tomorrow. On today's subject I believe I shall not say anything particularly new, because there has been no development of great importance in diabetes since the discovery of insulin.

The chief practical need in diabetic treatment seems to be to make it as simple as possible, and this will be the purpose of anything I shall say, whether it be new or old. The subject is really simple and should be taught simply, yet there are many points of confusion in the minds of practitioners. Many new ideas are brought out all the time, most of them not true, and many fads are introduced which unnecessarily complicate the views and treatment. As a result, diabetes remains a doubtful subject in the mind of the average practitioner, and the treatment of the great mass of patients suffers correspondingly.

Diabetes was first recognized, by old-time clinicians, by the sweet taste of the urine. For several centuries nothing further was known of it beyond an increasing number of clinical observations. A new period began with the introduction of an entirely new form of diet by Rollo, a surgeon of the English Army, in 1796. This diet, consisting of animal foods and excluding most vegetables, seemed to help diabetic patients. The discoveries in physiology and chemistry, at about the time of Claude Bernard, threw much new light upon diabetes

and the entire subject of metabolism. Still later, the discovery of diabetes following total pancreatectomy in dogs, opened a new way of experimental attack upon the problem, and gave strong confirmation to earlier pathological findings which suggested the pancreas as the seat of the disorder. Leading clinicians, especially Bouchardat, Cantani and Naunyn, developed the dietetic treatment to much higher efficiency. A period of discouragement then followed, when it was found that the severe cases usually continued to run a fatal course in spite of the advances in treatment. Also, the pathologists were confused by not finding in average diabetic autopsies sufficient pancreatic lesions to furnish a probable basis for the disease, and these perplexities were by no means cleared up after the recognition of the islands of Langerhans as the seat of the internal pancreatic function. This state of confusion was expressed clinically by the tendency to view diabetes as a symptom or syndrome rather than a distinct disease, and pathologically by attempts to locate the site of the disorder in organs other than the pancreas, for example, in the liver, thyroid, adrenals, hypophysis, or even in the body at large.

The more recent investigations have cleared up this confusion and have given us a clear and distinct conception of the nature of diabetes. It is a disorder of the islands of Langerhans in the pancreas. This fact is established by overwhelming experimental evidence, and a sufficiently close search reveals anatomical signs of injury in the pancreas in the vast majority of diabetic cases. Rare exceptions, which show no such lesions, are likewise readily explained as the result of acute inflammation causing diabetes but leaving no organic scars, as demonstrated also in animal experiments. There is basis for the assumption that every case of diabetes originates in infection or intoxication which damages the islands of Langerhans. The origin of this injury may be a chronic infection or some acute or recurrent infections, as, for

example, in the gall-bladder. In many cases it seems clearly to result from acute general or local infections, which may range from tonsillitis to appendicitis, pneumonia, thyroid or ordinary influenza. The diabetes may then ensue either immediately or only after months or years of functional wear and tear. The origin and the primary lesion of diabetes are thus explained, but the chief puzzle has been solved only by the discovery of the secondary pancreatic pathology, viz., a lesion which results from functional overstrain of the islands. The so-called hypertrophic degeneration consists in vacuolation, swelling and destruction of the island cells. This process can be so perfectly reproduced in experimental animals, and the causation and halting of it can be so perfectly controlled, that a full understanding is afforded of the similar findings encountered in many human autopsies. This destruction of the islands by functional overstrain, is the chief cause of the scarcity of island tissue in autopsies of the severest cases of diabetes: it explains the progressive loss of tolerance with uncontrolled diabetes and also furnishes the reason why proper dietary control not only relieves symptoms but also arrests the progressiveness of diabetes. This fact of the sparing of function and prevention of degeneration of the islands places the dietetic treatment upon a rational and fundamental basis. We know also that the long prevalent conception of diabetes as an inevitably progressive fatal disease is false, and that the disorder can be definitely controlled by controlling the two factors of infection and functional overstrain.

The symptoms of diabetes are too familiar to require detailed discussion. For convenience they may be divided into three groups: First the direct consequences of the metabolic defect, such as hyperglycemia, polyuria, loss of weight and strength, acidosis, etc.; second, the indirect impairments of organs or tissues in the form of complications such as neuritis, retinitis, arteriosclerosis, etc.; third, the infections due to deficient resistance, such as boils, carbuncles, cystitis and tuberculosis. Disorders of all these three classes are either arrested or greatly benefited by thorough control of the primary metabolic abnormality.

The treatment necessary for obtaining this desired control is divisible into two classes, viz., the dietetic treatment and treatment with insulin. Of these two, the treatment by diet is by far the more important, partly because the majority of cases can be managed successfully by diet

alone without the aid of insulin, and partly because accurate diet is essential in all insulin-treated cases in order to obtain satisfactory results.

DIET TREATMENT

Every physician who treats diabetes at all should know how to calculate and plan a weighed diet. This does not mean that the diet must always be weighed, because, as a matter of fact, the majority of cases are sufficiently mild that they can be controlled satisfactorily with an estimated diet. But in order to estimate the diet intelligently, to supply enough and not too much of the individual constituents and of total calories, knowledge of the calculation is necessary. One of the greatest drawbacks is the desire of physicians to be able to turn to a certain page in a certain textbook to find a diet for diabetes. This is an impossible wish because no two patients have the same needs, and any diet which is exactly right for one individual as regards calories or individual constituents, is by no means correct for somebody else. Also, strange as it may appear, in the long run the arbitrary following of printed diet slips is actually more difficult for both physicians and patients than the intelligent planning of the individual allowance. This is where institutional training is particularly valuable, because the patient thus obtains an education which lasts the rest of his life and which he seldom obtains under any method of home treatment. With the knowledge thus gained, he can enjoy better diets from the standpoint of taste and satisfaction than he is likely to obtain otherwise; the tendency to break diet is correspondingly lessened, and the family physician, therefore, usually finds much less trouble in keeping the case under control.

The principles of diet calculation are extremely simple. One gram of either protein or carbohydrate represents approximately four calories, and one gram of fat represents approximately nine calories. The percentage contents of protein, carbohydrate and fat in all the common foods are given in food tables. It is, therefore, not difficult to select the foods for each day's menu to furnish the desired quantities of the various constituents and of total calories. As these calculations are learned so readily by nearly all patients, including children, they should certainly be no obstacle to any physician.

The management from a therapeutic standpoint is almost equally simple, if fads and unnecessary complexities are avoided. It is not necessary to have determinator

of the basal metabolism or to calculate so-called ketogenic-antiketogenic ratios. The allowance of protein can be governed by ordinary bodily needs, provided no special restriction is required by a complicating nephritis. The carbohydrate allowance is subject to a considerable range of choice, especially in mild cases, or in those under insulin treatment. On the whole, moderate allowances of protein and carbohydrate are best, rather than extremely high or extremely low proportions, such as have too often been used on the basis of erroneous theories. This rule may mean perhaps fifty to 100 grams protein, or forty grams carbohydrate upward, as the daily allowance for various individuals. Diabetic diets have always been high fat diets in the sense of carrying most of their calories in the form of fat. No benefit is gained, and the pleasing quality of the diet is spoiled, by employing too great a disproportion of fat, but little actual harm results if the total calories are suitably limited. The greatest harm and danger result from the idea that fat is harmless and that it should be given in huge amounts to raise the total calories as high as possible without causing acidosis. Abundant proof has been published, and any careful observer can demonstrate for himself, that the total calories exert a tremendous influence upon the diabetic tolerance, and no diet is properly planned unless there is proper regulation of the total calories. The allowance of calories likewise is governed by simple common sense. If a patient is obese, or if there is a decided need for increasing the tolerance in order to avoid the use of insulin or to lower an excessive insulin requirement, undernutrition is used. If the patient is emaciated, he is overnourished to the extent of building him up to somewhere near normal weight. When the weight is normal or a few pounds below the average normal, the caloric allowance should be such as to maintain this condition and provide adequate strength.

INSULIN TREATMENT

Insulin is a marvelous and life-saving discovery; nevertheless one of the purposes of the treatment is to avoid its use if possible. This is not because of any special danger, for hypoglycemia and other accidents are scarcely to be feared under proper management. We, for example, in our large series of cases have never had a single death attributable to insulin. The idea that insulin offers an easy way of avoiding diet is a serious error. The endeavor to conduct the treatment without insulin, if possible, is based first upon the inconvenience of the insulin injections and also partly up-

on the fact that the diet must be even more strictly regulated with insulin than without. With diet treatment alone, we need to guard only against glycosuria or hyperglycemia, but with insulin we must steer a narrow course between this difficulty on the one hand and hypoglycemia on the other.

Nevertheless, when the patient cannot be kept in comfortable nutrition by diet, recourse should be had to insulin. There are a few exceptions to this rule, notably in children or in patients with tuberculosis. In these cases insulin is commonly indicated for precautionary reasons, to maintain the best nutrition and as a safeguard against loss of tolerance.

There is no arbitrary rule of dosage, the attempts to evaluate the unit of insulin according to the quantities of carbohydrate in the diet or of sugar in the urine being fallacious. A rough idea can be gained from the apparent severity of the case, so that in a case which is obviously very severe we may immediately order three fair-sized insulin doses per day. In general, the principles of dosage may be conceived as follows:

If a case is barely severe enough to require insulin, frequently one dose per day will suffice. This is commonly given before breakfast but may be given at practically any convenient time. With increasing severity of the case, the point is reached where a single insulin dose fails to prevent glycosuria through the twenty-four hours, and too great an increase of this dose results in hypoglycemia within the few hours following. Such a case may be smoothly controlled when a reasonable quantity of insulin is given in two doses at morning and evening respectively. With still greater severity, this dosage does not suffice to prevent both glycosuria and hypoglycemia. Then a smooth control is generally obtained by dividing the insulin for the day into three injections. In rare instances, particularly in young children, the fluctuations of the sugar may be controlled only with the aid of a fourth dose given sometime during the night. There is, however, no strong reason for the common custom of giving insulin in conjunction with meals. The necessity for a fourth dose can generally be avoided by proper spacing of the three doses, giving the first one an hour or two before breakfast, and the last one after supper or at bedtime, so as to shorten the night period during which the insulin supply may otherwise become deficient. A useful point to bear in mind also is that any given quantity of insulin is more effective, the greater the number of doses into which

it is divided; for example, the effect of thirty units of insulin is greater in the form of three injections of ten units each than in the form of two injections of fifteen units. It should also be remembered that heavy exercise commonly lowers the insulin requirement; for example, a patient who has been in perfect balance on a fixed program may go on a long tramp or exert himself unusually on some particular day and suffer a severe attack of hypoglycemia.

Time will not permit any detailed discussion of the treatment of complications, such as acidosis, gangrene and infections. It is well known that the presence of acidosis or active infection may enormously increase the insulin requirements, so that sometimes several hundred units may be given within twenty-four hours and no lower dosage may control the condition. Gangrene can usually be treated conservatively when only soft tissues are involved, and under these conditions healing is generally obtained by control of the diabetes, even when the circulation is extremely poor. When bone or tendon is involved in the necrosis, operation is nearly always needed. The most conservative local measures may succeed in a few instances when the blood supply is unusually good, but with the degree of arteriosclerosis present in the average case high amputation is more often required, and it is best done early, before the patient's strength is too far exhausted. Most infections are best treated by stringent undernutrition, together with enough insulin to keep the blood sugar thoroughly normal. Tuberculosis is an exception which calls for high nutrition and, frequently, high insulin dosage. With this treatment the prognosis of the tuberculous diabetic is no longer hopeless, as heretofore, but is fully as good as that of the non-diabetic with a similar infection.

In conclusion, it is theoretically possible to enable diabetic patients generally to live as long and almost as efficiently as if they had never had diabetes, provided treatment is begun at a reasonable time and is carried out with reasonable thoroughness. It is the task of the medical profession to accomplish the practical realization of this ideal so as to reduce the present high mortality from this disease.

VARIATION OF INDIVIDUAL CASES OF ARTIFICIAL PNEUMOTHORAX

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(Read before the El Paso County Medical Society.)

In a recent paper* on artificial pneumothorax, the indications, contra-indications,

manner of administration and complications were tabulated. This paper dealt with pneumothorax in more or less of a general way. However, when pneumothorax treatment is begun, every individual case becomes more or less a law unto itself, and each individual case will show wide variations from other cases.

When it is decided that artificial pneumothorax is indicated in a particular case of pulmonary tuberculosis, a successful compression of the diseased lung is dependent upon the extent and character of adhesions that attach the lung to the chest wall. From fluoroscopic examination and x-ray films, valuable information is obtained as to the involvement, consolidation and cavitation over the worse lung, but very little definite information is given as to pleural adhesions. One cannot definitely determine from the Roentgen ray whether or not the induction of artificial pneumothorax will be possible. The same is true of the physical examination. The introduction of the pneumothorax needle and search for a free pleural space and manometer reading is the only way of knowing positively. If a free pleural space is found, the amount of air introduced, the manometer reading obtained will then depend upon the pleural adhesions, the fixation of the heart and mediastinum and the elasticity of the lung of the individual case. As artificial pneumothorax progresses with succeeding refills, the elastic portion of the lung is first compressed, while the diseased and less elastic portion of the lung is more slowly compressed and, conversely, when pneumothorax is discontinued the unaffected, more elastic portion of the lung re-expands rapidly, while the diseased portion re-expands slowly on account of the inelasticity caused by the consolidation of the disease prior to the induction of pneumothorax and the increased fibrosis that occurs during the time the lung is compressed. Case records and x-ray films, which follow, illustrate varying conditions in individual cases of pneumothorax.

Case 1. (Record No. 1569). Mr. E. McB., aged 45, entered sanatorium Dec. 4, 1926, with a history of trouble for twelve months, sputum positive. Right lung showed rales from apex to middle of interscapular region; left lung showed a few clicks in interscapular region. Patient left sanatorium January 8, 1926, improved. He returned to sanatorium February, 1926, all symptoms increased. Plate I (1321) shows involvement of lower portion of lung, beginning cavitation in lower lobe rather than upper quadrant, and shows compression of elastic unattached upper portion of lung. Artificial pneumothorax was induced. Patient's cough and symp-

*"Some Points to be Remembered in the Administration of Artificial Pneumothorax," read before the Southern Medical Association, Memphis, Tenn., Nov. 5, 1927, by Dr. J. W. Laws, El Paso, Texas.

toms subsided. He has gained ten pounds in weight and feels better than he has felt for the past three years. Only partial compression has relieved symptoms.

Case 2. (Record No. 1568) Mrs. C. D. W., aged 36, doctor's wife. There was some decline in health for over a year. Patient had spent three months in bed at home and after three months in bed in sanatorium without any decided improvement in symptoms, pneumothorax was advised. The physical findings were as follows: Right lung showed a few

crackles in upper third; left lung showed latent rales following cough from apex to base. Sputum positive.

Artificial pneumothorax was administered over the left lung and kept up for a period of two months. Patient improved steadily, but when pneumothorax was attempted at one of the regular seven day intervals, it was found impossible to obtain a reading or to introduce air into the pleural space. At the attempted refill an air embolism, so-called pleural shock, probably occurred, possibly due to

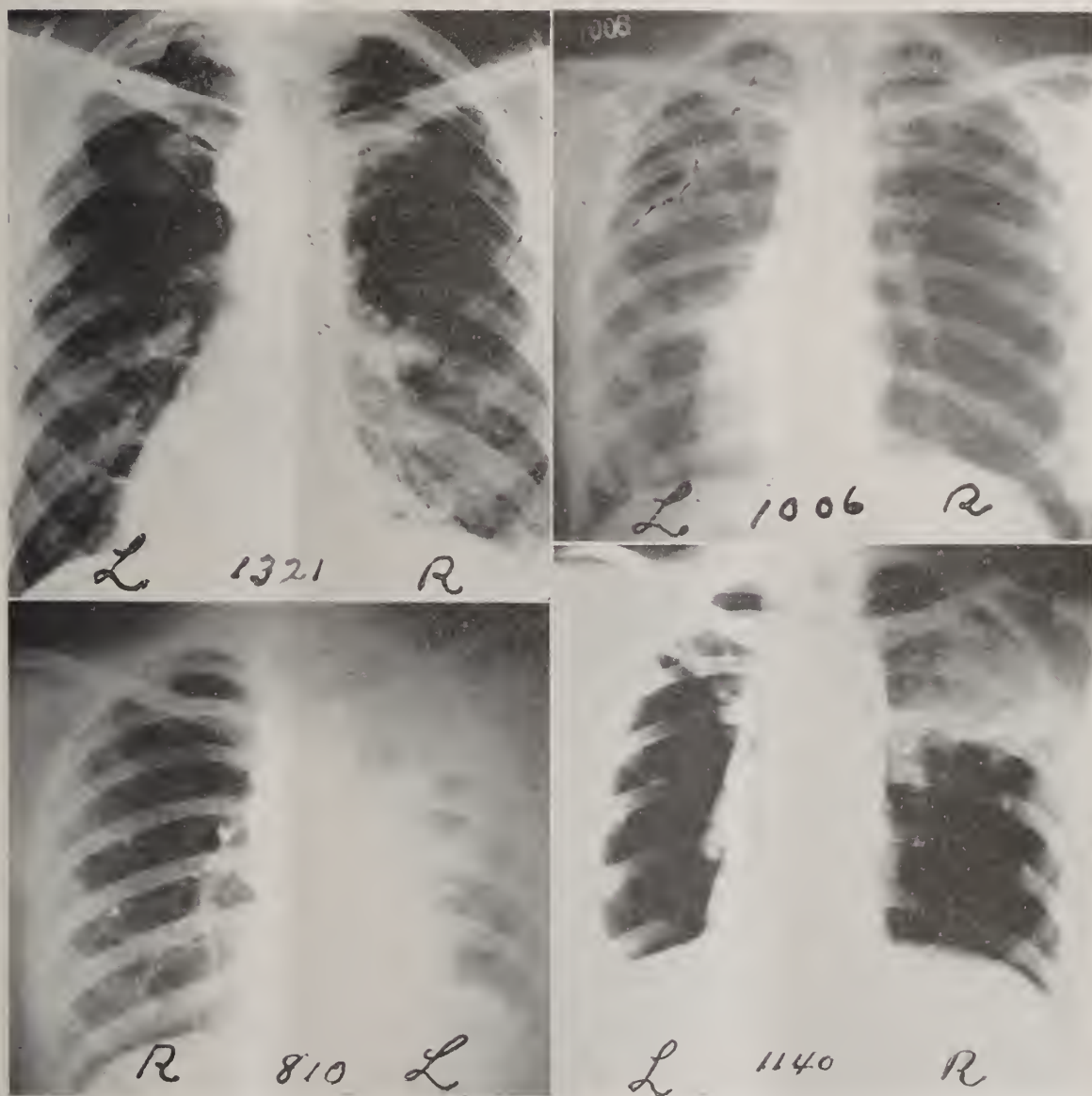


PLATE I.

Fig. 1. (Film 1321). Shows involvement of lower portion of right lung, with beginning cavitation, and partial compression of elastic unattached upper portion of lung (Case 1).

Fig. 2. (Film 1006). Condition in Case 2, at time when pneumothorax had to be discontinued.

Fig. 3. (Film 810). Condition in Case 3 before pneumothorax.

Fig. 4. (Film 1140). Amount of compression in Case 3, in left lung, at time of spread of infection into the contra-lateral lung.

puncture of the lung. At that time the patient lost consciousness for a few minutes and could not raise arms or move lower limbs and felt constriction over the chest. In a short time she recovered but raised blood for a few days thereafter. This condition rarely happens, but now and then does happen, very much to the surprise and alarm of both doctor and patient.

Plate I (1006) shows condition at the time pneumothorax had to be discontinued. At present time patient's sputum is rarely positive. There are no rales. Patient under sanatorium regime bids fair to recover,

Case 3. (Record No. 1567.) Miss R. A., aged 18. October, 1925. Doctor's daughter, college student when taken ill. Duration of trouble two years. Sputum positive. Physical examination showed right lung with few rales at angle of scapula only. Left lung showed fine and coarse rales throughout. Artificial pneumothorax was used over left side, 400 to 500 c.c., given every seven days until neutral pressure was reached. The patient improved. Pneumothorax was kept up for eleven months, then a flare-up occurred, with loss of appetite, fever, increased cough and some pain over the right lung. Plate I (810) shows lung before pneumothorax was

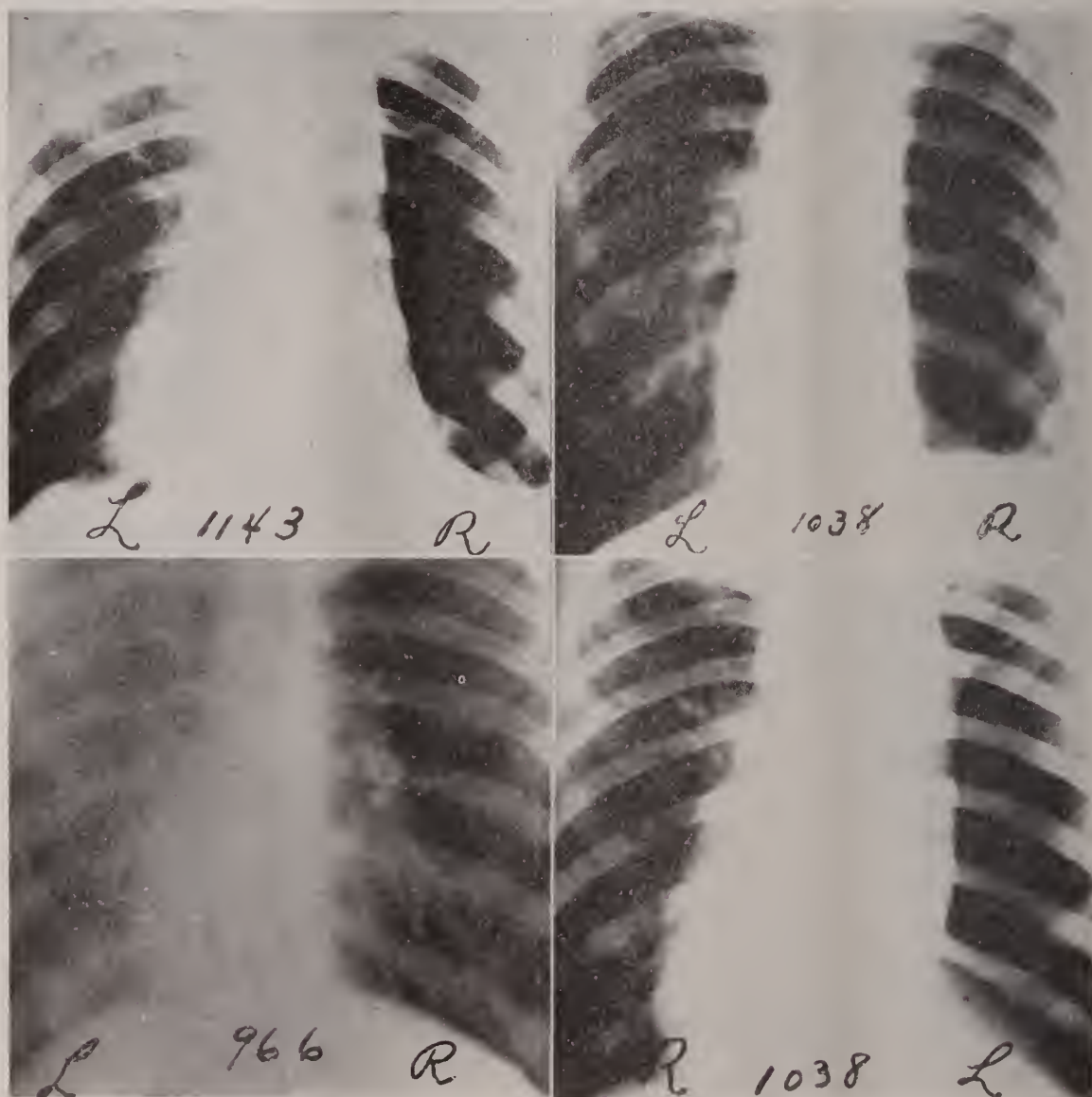


PLATE II.

Fig. 5. (Film 1143). Case 4, showing amount of compression of left lung, and infiltration in right lung, causing temporary abandonment of pneumothorax.

Fig. 6. (Film 996). Case 5, showing extensive involvement of the left lung and considerable in-

filtration of right lung, prior to administration of pneumothorax.

Fig. 7. (Film 1038). Left lung several weeks after pneumothorax had been discontinued, (Case 5).

used. Plate I (1140) shows amount of compression of left lung at time of spread of infection in upper portion of contra-lateral lung.

In this case of contra-lateral lung activity, pneumothorax was definitely discontinued. At the present, the patient is on bed-rest regime and is doing very well, but outlook for recovery is uncertain.

Case 4. (Record No. 1515). Mr. W. J., aged 23; May, 1925. Occupation, life insurance work. Positive sputum. Physical examination: Right lung showed sub-crepitant rales from apex to angle of scapula and occasional rales to the base, posterior, and from apex to third rib anterior; left lung showed occasional clicks in suprascapular region only. The patient was given bed-rest in the sanatorium and improved; however, on allowing him to sit up for a couple of hours daily, a return of acute symptoms occurred, so pneumothorax was advised and administered. The patient improved and was able to be up and about without symptoms and left the sanatorium. After taking pneumothorax for about one year, this patient had a flare-up of trouble in the contra-lateral lung. A small amount of fluid formed two or three times on pneumothorax side following refills, but was quickly absorbed. Plate II (1143) shows the amount of compression in the right lung and also the infiltration in contra-lateral lung at the time of flare-up. Pneumothorax was discontinued only temporarily. The right lung was allowed to re-expand to about one-half of its former compression. As a result the elastic lower portion of the lung became attached at the costophrenic angle. The patient's symptoms of activity over contra-lateral lung subsided, but he noticed that there was an increase of heavy sputum, which he suspected as coming from the right side. A small inflation of air in the right side caused a marked reduction in the amount of sputum raised. So small inflations are now used in his case, despite the increased infiltration in the contra-lateral lung.

Case 5 (Record No. 1563). Mr. W. E. V., aged 31; January, 1927. Occupation, brakeman. Duration of trouble, one year. Physical examination: Right lung showed fair vesicular breathing. A few rales were heard over the upper lobe. Left lung showed the metallic sounds usually heard over area of pneumothorax. The history of pneumothorax as told by the patient was rather interesting. The first physician in the case administered from 300 to 400 c.c. every five days and the patient improved. However, he was transferred to another sanatorium, where the physician, according to the patient, administered large inflations, 500 to 700 c.c., every other day for two weeks. The patient became very short of breath, lost weight, became ill and thought that the altitude was too high for him and came to El Paso. When the patient presented himself to our service, the heart and mediastinum were shoved over to the right side, fluid was forming on the left side, and the patient was so ill that he had to have a special nurse and appeared as though he would live only a short time. Pneumothorax was discontinued for several weeks, and when recommenced, only small inflations were used; then the patient began to improve. He is now up and about and it is with difficulty that he is kept from over-exercising. Plate II (966) shows extensive involvement of the left lung and considerable infiltration of the right lung prior to the administration of pneumothorax. Plate II (1038 a and b) shows left lung several weeks after pneumothorax had been temporarily discontinued. This case demonstrates the danger of too large and too frequent infiltrations.

This case illustrates the danger and severe dam-

age that may result from too rapid increase of high positive pressure in certain individuals. Contrast this with Cases 7 and 10 where positive pressure was of advantage.

Case 6. (Record No. 1606.) Mrs. J. C., aged 29. February 8, 1928. Occupation, housewife. In 1922, developed pulmonary tuberculosis. There was slight infection of the right lung and severe infection of the left lung. She spent about one year at Saranac Lake, where pneumothorax was induced over left lung, 1923. The past four years has been spent in central Texas. Pneumothorax over the left lung has been kept up, refills at intervals of two weeks. She did very well until September, 1927, since which time she has had increased cough and expectoration and has noticed some soreness and pain over right lung. Plate III (1302) shows the amount of infection in the right lung and the amount of collapse of the left lung.

This case illustrates mistake of continuance of pneumothorax over the left lung disregarding increased activity over the right. It would have been much better for this patient if the re-expansion of the left lung had been started some four months ago. That is the plan that is now being followed. Whether pneumothorax will be continued or the refills placed at longer intervals depends upon future development in this case.

Case 7. (Record No. 1501) Mr. L. S., age 30, November 24, 1923. Nationality, Jewish; occupation, tailor. Slight cough, sputum positive, fever 100°, shortness of breath. Right lung showed rales over upper lobe with symptoms of cavitation in upper third; left lung negative. After two years' rest in bed, there was little or no improvement. Finally, in the latter part of 1926, there was increased activity, expectoration became profuse and the patient had a severe hemorrhage. Artificial pneumothorax was induced over the right lung. The patient improved, but cough and expectoration, although decreased somewhat, with neutral pressure, continued. Thoracoplasty was advised in order to close the cavity in the apex, but was refused. Increasing positive pressure was begun, which gradually reduced the amount of sputum and the patient's general condition improved. A positive pressure of plus 6 is now used and found to be effective in this individual case. The patient raises very little sputum, has no fever and observes only a few hours rest daily. Plate III (1229) shows lung and heart displacement with high positive pressure, which was of value in this patient. (Contrast Case 5.)

Case 8. (Record No. 1607.) Mr. M. S., age 43. February 16, 1928. Nationality, Jewish. In good health until May, 1926. About this time tonsillectomy was done under general anesthesia. He apparently recovered but in less than a month's time developed hemoptysis and for three months had hemorrhages. Cough was dry until something broke and he coughed up large quantity of sputum, which was negative for tubercle bacilli. For five months, varying quantities of pus and hemoptysis continued. In December, 1927, pneumothorax was induced over the left side to control severe hemorrhages. 400 to 500 c.c. was given twice weekly. On entering sanatorium, patient insisted on having pneumothorax, insertion of needle showed a plus 8 positive pressure. Plate III (1525) shows displacement of the heart and mediastinum at that time. In this case not enough time has been given for a movable heart and mediastinum to become fixed, nor has enough time been given for compression of the non-elastic area surrounding the abscess.

Case 9. (Record No. 1328.) Mr. J. T., age 24. 1924. Greek; occupation, waiter. Cough, sputum positive. Duration of trouble eight months, during which time he had to work. Three weeks prior to admission to sanatorium had severe hemorrhage. At time of admission, cough was harrassing, temperature 102°, decline of patient was rapid. Right lung showed a few crepitant rales posterior, near the base. Left lung showed dullness, tubular breathing, poor vesicular breathing, rales throughout front and upper two-thirds posterior. Prolonged rest might have arrested his trouble, but for economical reasons it was necessary for him to return

to earning capacity as soon as possible. Artificial pneumothorax was used over the left lung and kept up for four years. During the greater portion of the four years he has worked as a waiter. Plate III (1217) shows lung re-expanding four years later. The patient has no cough, no expectoration and no symptoms. Pneumothorax was discontinued in this case. There has been contraction of left thorax, heart is drawn over, intercostal spaces are narrowed and recently small inflation of air caused pain and fever. Compression of the left lung for a longer length of time seemed to be defeating rather than assisting nature's efforts in this case, so pneumothorax has been discontinued.

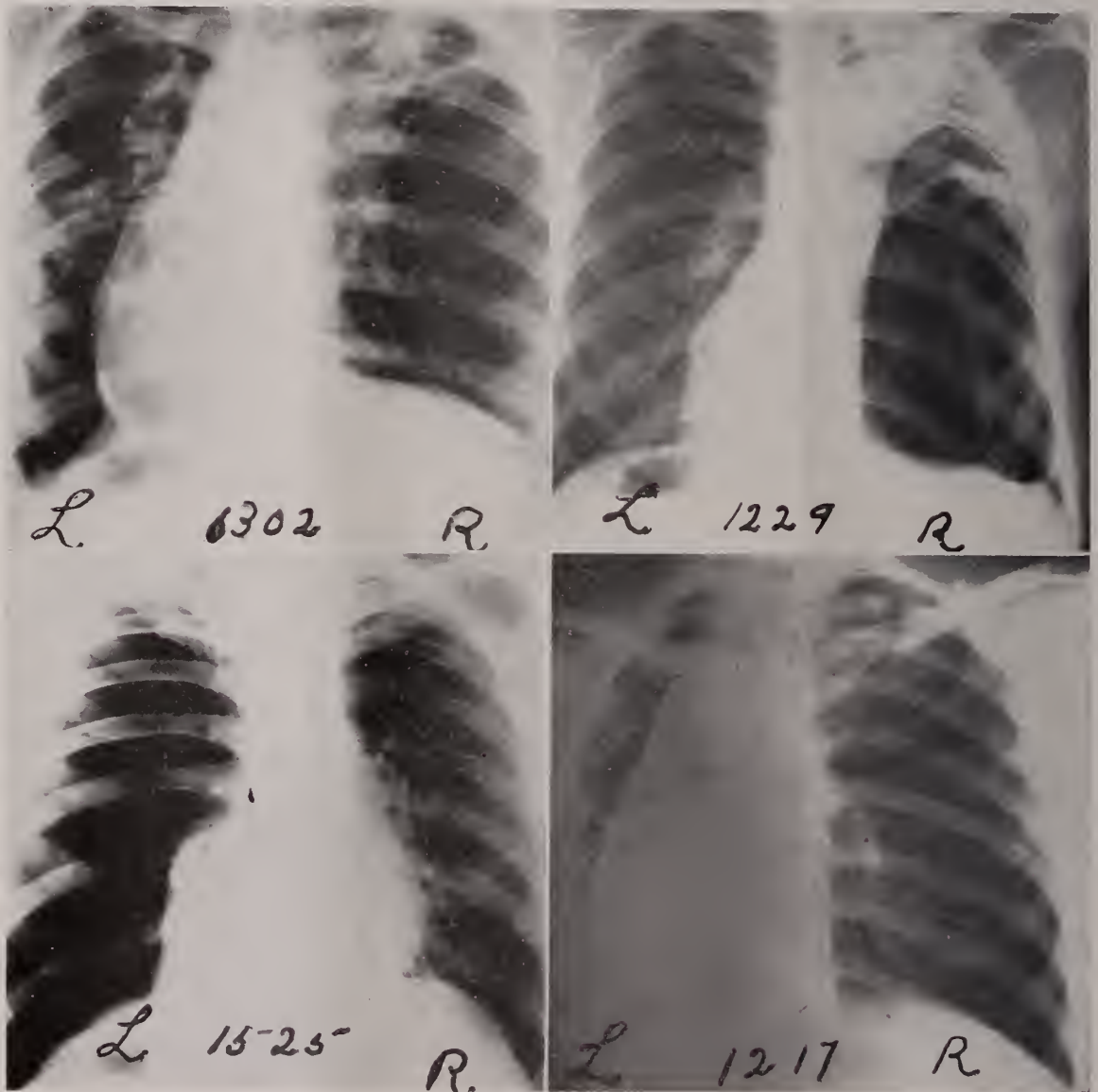


PLATE III.

Fig. 8. (Film 1302). Case 6, partial collapse of left lung, showing infection in right lung calling for readjustment of left sided compression.

Fig. 9. (Film 1229). Showing Case 7, with high positive pressure which was advantageous in this instance.

Fig. 10. (Film 1525). Case 8, with displacement of heart from too high pressure.

Fig. 11. (Film 1217). Case 9, showing right lung re-expanding after artificial pneumothorax lasting four years.

Case 10. (Record No. 1566.) Miss F. R., age 37, March 10, 1925. Nurse. Duration of trouble, one year, in bed in sanatorium in Georgia. Gained weight, but wheezing and asthmatic breathing persisted. Sputum positive. One-half cup in twenty-four hours. On admittance to sanatorium, right lung showed rhonchi throughout. Only occasional latent rales from apex to base in front and to angle of scapula behind. Asthmatic rhonchi throughout.

Artificial pneumothorax was induced over the left lung. Climate improved asthmatic condition,

but did not entirely eliminate bronchial wheezes. Pneumothorax relieved the fever and symptoms of activity. Patient has been nursing for over a year and is self-supporting. Plate IV. (1290); note adhesions are still holding lung partially open. A slightly positive pressure, plus 2, holds symptoms in abeyance, but with diminution of pressure rhonchi return and a small amount of raising is positive. X-ray holds out promise that it may be possible to have adhesions severed, allowing complete collapse and complete relief of all symptoms.

This case demonstrates the value of a high positive pressure.

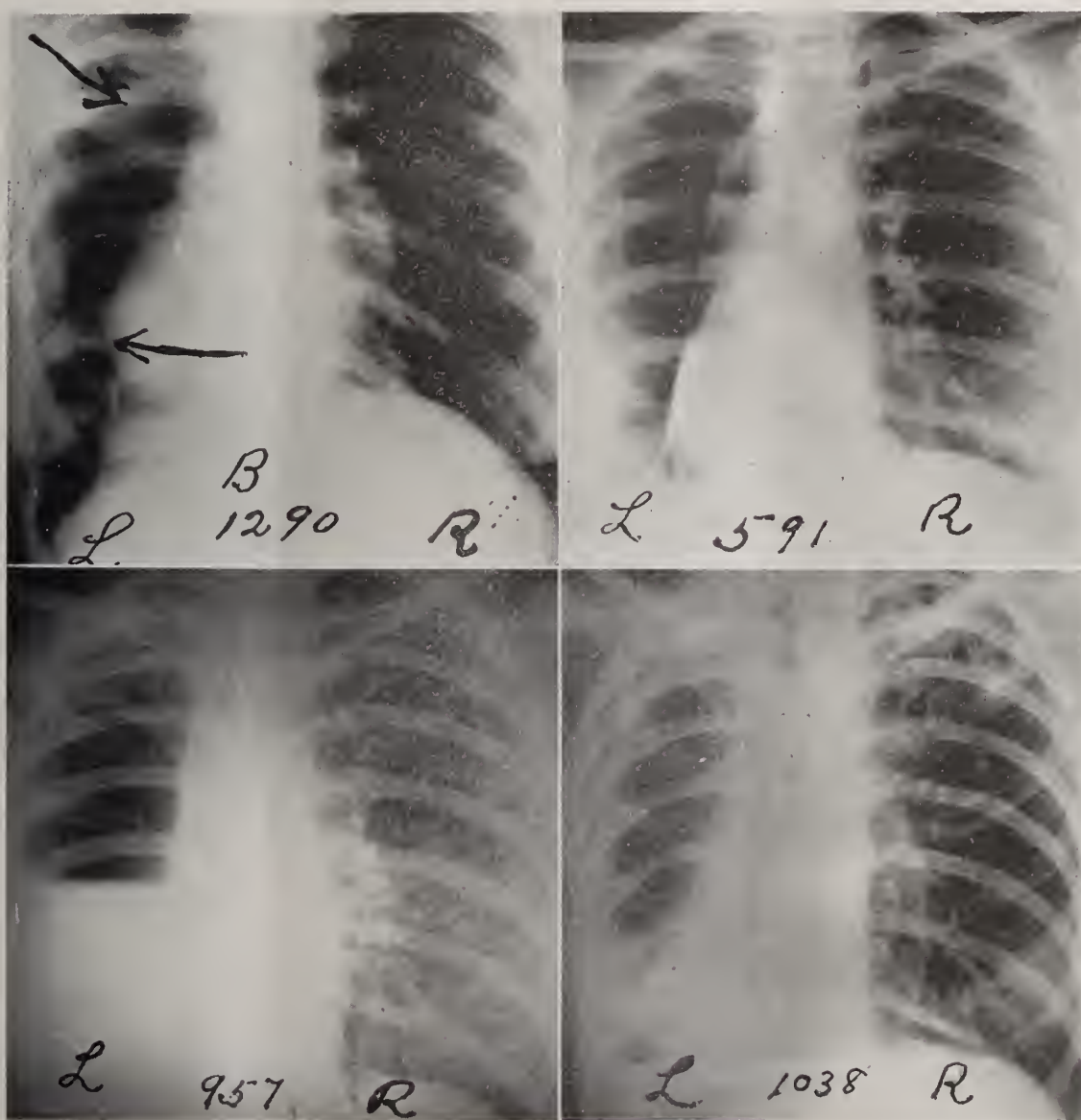


PLATE IV.

Fig. 12 (Film 1290). Case 10, in whom partial pneumothorax relieved symptoms of activity, although adhesions are holding lung partially open.

Fig. 13 (Film 591). Case 11, showing condition of both lungs prior to pneumothorax.

Fig. 14 (Film 957). Case 11, showing lung after spontaneous pneumothorax.

Fig. 15. (Film 1038). Case 11, showing present condition of right lung, and left side after drainage through intercostal fistula.

Case 11. (Record No. 1562.) Mrs. G. M., age 26. February 7, 1925. In 1921, three years after onset of symptoms, physical examination showed right lung with some slight involvement in the upper lobe. Left lung showed rales throughout, with evidence of cavitation in the upper lobe. In 1922, pneumothorax was induced over left lung. Patient improved markedly. Fluid formed in 1925, complicating the regular intervals of artificial pneumothorax and resulting in some re-expansion of the lung. Spontaneous pneumothorax occurred in November, 1926, since which time fluid has been purulent. Aspiration every seven days for four months followed until a fistulous tract, at site of aspiration punctures, opened, through which drainage now takes place. Plate IV (591) shows condition of both lungs prior to spontaneous pneumothorax. Plate IV (957) shows condition of lung after spontaneous pneumothorax. Plate IV (1038) shows present condition of right lung and the condition of the left lung since drainage through intercostal fistula.

The patient has improved with better drainage resulting from intercostal fistula. It is to be hoped that her general condition and the condition of the right lung will improve to where, ultimately, thoracoplasty can be done.

Case 12. (Record No. 601.) W. B. T., age 34. 1920. Occupation, plasterer. Duration of trouble in 1920 had been one year. The patient was unable to work. Temperature, 100 to 102, with frequent attacks of blood raising. Right lung showed rales over upper two-thirds; left lung showed granular breathing in interscapular space, with no rales. This man was placed in the sanatorium by a fraternal order which paid his expenses, and his relatives helped to support his wife and five small children. He worried over being a subject of charity and, despite three months bed rest in sanatorium, his condition showed no improvement. About this time he had a severe hemorrhage. Knowing his dependent family and the necessity, for economical reasons, of returning this patient to earning capacity, pneumothorax was induced over the right lung. In six weeks time the patient was able to leave the sanatorium.

In this case pleural effusion caused so much pressure and dyspnea that at one time aspiration was necessary and replacement by air. Plate V (633) shows right lung re-expanding after three years. About this time the patient took cold, took a few drinks of intoxicants and began to hemorrhage. Pneumothorax was recommended. Plate V (1491) shows right lung still compressed seven years later, and the patient prefers to keep up compression until all his children have finished school. In this individual case, pneumothorax is kept up indefinitely in contra-distinction to Case 9 where it seemed best to discontinue pneumothorax.

Case 13. (Record No. 998) Mrs. S. H., age 46; February, 1924. housewife. Duration of trouble two years. Right lung had no rales; left lung sup-two years. Right lung had no rales; left lung sub-to base front and back. First two years in this climate patient did fairly well, but in August, 1926, she began to run temperature from 100 to 102, cough and expectoration were markedly increased, the patient lost weight rapidly and the husband considered taking his wife back to St. Louis to die. He was advised to have pneumothorax tried. From the slides one would judge, from the thickened pleura, that no free space would be found. However, on auscultation a pleural rub high up in the axillary line was noted and a manometer reading was obtained with the first puncture. After using pneumothorax several months, fluid formed. In this case fluid pressure became so great that dyspnea and irritative cough necessitated aspiration of large quantity of fluid, but, instead of re-

placing air at once, patient was told to return in three days for pneumothorax. When she returned, 50 c.c. of air caused positive pressure and that condition has existed since. Gomenol is introduced in this case with the hope of preventing oblitative pleural adhesions. Up to this date the patient does her housework and is practically symptom free. Plate V (886) would seem to indicate that it would be impossible to use pneumothorax on account of pleural thickening over the left lung. Plate V (1027) shows partial compression and also shows double line of fluid formation. This patient has improved markedly, gaining some eighteen pounds in weight, is up and about, rarely coughs and raises only a small pellet of sputum daily. Since the formation of fluid, pneumothorax is given only at infrequent intervals, depending entirely upon the amount of fluid and indications for giving it.

SUMMARY

The above case reports represent only a few of the variations of individual cases of artificial pneumothorax, but enough has been shown to demonstrate the following points:

In one particular case positive pressure will do no definite harm, while in another individual case, positive pressure will improve the patient's condition.

In contralateral lung involvement, observation of the patient's symptoms and x-ray findings will be a guiding factor in determining whether pneumothorax will be definitely discontinued or only temporarily discontinued. If the patient's symptoms are watched closely following each succeeding inflation, and if the roentgen ray observation of the cavities and adhesions on the side compressed are observed, and if the condition of the contralateral lung and the displacement of the heart and mediastinum are noted, then it will be comparatively easy to adopt the procedure indicated in the individual case.

The length of time pneumothorax should be used will depend upon the individual case. In some cases it will be kept up indefinitely (for years), while in other cases, it will be necessary to discontinue its use on account of oblitative changes in the pleura of the compressed lung and the thickened pleura of the chest wall.

The management of pleural exudates depends upon the patient's symptoms, the amount of fluid and lung compression as shown by physical and x-ray examinations, and these factors will govern the line of procedure for each individual case. In some cases the pressure of fluid will adequately compress the lung and observation of the patient under the fluoroscope at stated intervals will be all that is necessary. To go into a detailed discussion of the management of pleural effusion would go beyond the scope of this paper. From the writer's experience the following facts should al-

ways be borne in mind: (1) Pleural exudates are more apt to occur where adhesions are pulled upon, where rapid compression of the lung is attempted, and where high positive pressures are used. (2) The lower portion of the compressed lung has a tendency to re-expand unobserved under pleural fluid and become attached to the diaphragm and the thoracic wall, obliterating the costophrenic angle, thereby materially interfer-

ing with future adequate compression of the lung. (3) Ultraviolet radiation often promotes rapid absorption of pleural exudates; therefore, frequent fluoroscopic observations are necessary in such cases. (4) The formation of fluid in the pleural space causes thickening of the pleura and a consequent fixation of the mediastinum; thereafter the air introduced with pneumothorax is not absorbed so readily and the refills are far-

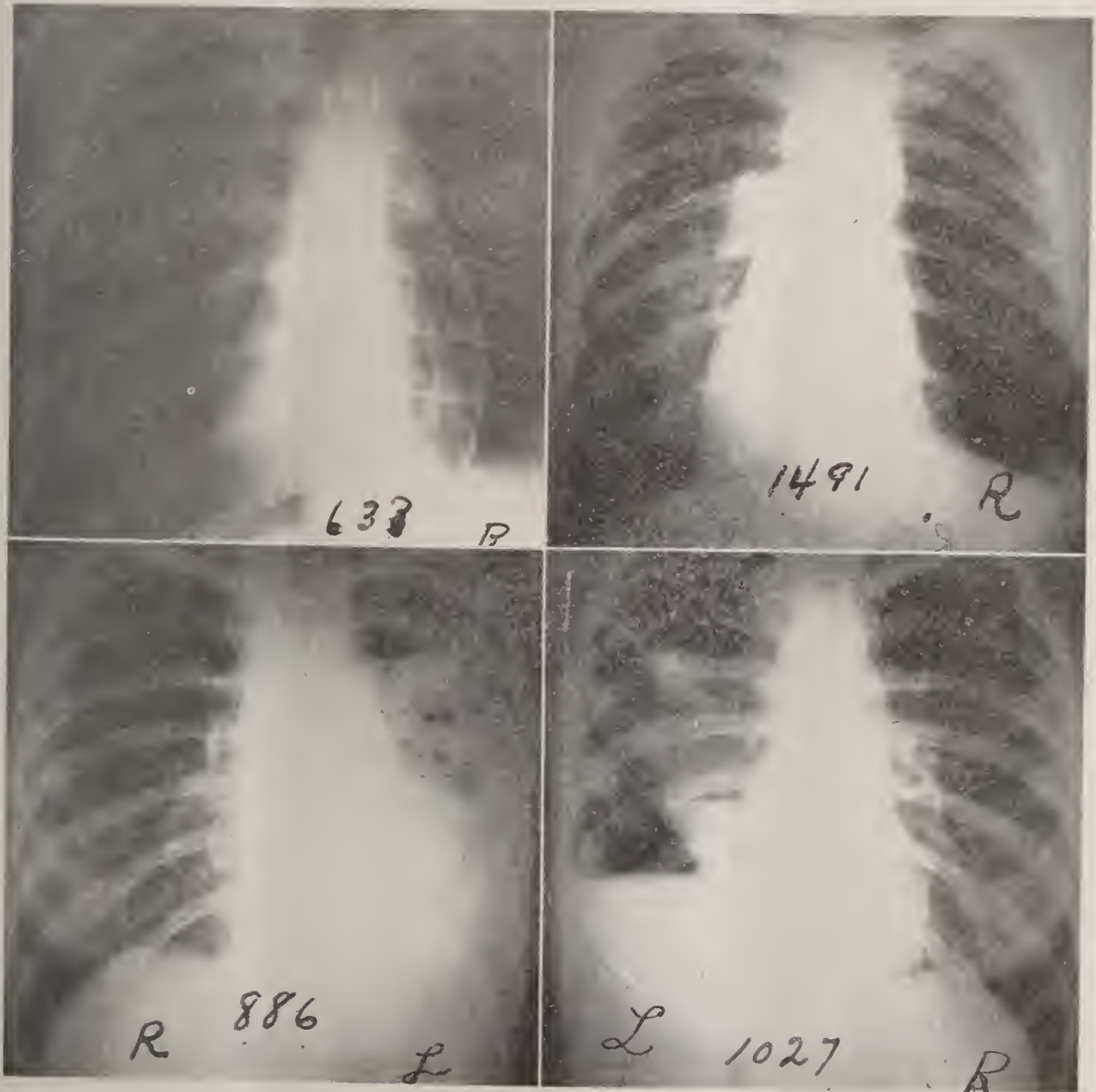


PLATE V.

Fig. 16 (Film 633). Case 12, showing right lung re-expanding after three years of pneumothorax.

Fig. 17. (Film 1491) Case 12, after re-compression of right lung.

Fig. 18 (Film 886). Case 13, showing densities which seemed to indicate that pneumothorax would not be possible.

Fig. 19 (Film 1027). Case 13, showing partial compression, with double pocket of fluid. Marked clinical improvement.

ther apart. (5) Pleural effusions that become purulent should be aspirated and immediately replaced with air, ascertaining whether or not a bronchial fistula exists. Treatment will vary with the indications in the individual case.

DISCUSSION

Dr. J. D. Riley stated that, as a rule, no two cases were exactly alike and that, while positive pressure was good in one case, it might not be in another. He took exception to discontinuing pneumothorax when trouble starts in the opposite lung, unless very recent, and asked Dr. Laws how much success he had had, stating that his own experience had been very discouraging.

Dr. A. D. Long asked what portion of the lung collapses first, stating that he could not tell until he found out about the free pleural space over the diseased area, and that the diseased area could not be compressed if you have adhesions over it. He cited a case where he is now successfully collapsing the upper diseased part and conserving the lower part; also another case with cavity in upper part and hemorrhage, in which gas is now being given to close cavity and upper third, but saving the lower part. This could not be done, if adhesions held out the upper part. In cases where he had adhesions at top he would discontinue pressure. In his opinion selective cases for pneumothorax are very important.

Dr. E. D. Price remarked that adhesions cannot always be located by x-ray and stethoscope.

In closing, Dr. Laws stated that, in cases where there is trouble in controlling the opposite lung, it is best not to stop the pneumothorax but to ease up on it and see what the other lung will do, and not to continue to give pneumothorax unless results were benign obtained. He stated that it was possible by using low pressure over a long period of time to get compression over the diseased lung and not over the good part.

A BIRD'S EYE VIEW OF THE HISTORY OF MEDICINE

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The history of medicine may be divided into seven more or less clearly marked periods. The first extended from the dawn of history to the date of the Coan and Cnidian schools of Greek medicine; the second period is that of Hipocrates; the third is that of the Alexandrian school, 300 B. C. to 130 B. C.; the fourth begins with Galen in 130 B. C., and ends with the sixteenth century; the fifth is the Renaissance period of medicine under such men as Vesalius, Paracelsus, Pare, and Harvey; the sixth is the period of theories and speculations and ends with Jenner in 1800; the seventh is the period of modern medicine of the nineteenth and twentieth centuries.

Early medicine was a combination of mysticism, superstition, voodoo rites, jugglery and rude empiricism. During the periods of Hippocrates and the Alexandrian school, medicine was gradually taken from the control of the priesthood where it had

largely been, by a learned profession with a considerable scientific status and a high but neglected code of ethics.

The papyri of the early Egyptians and Assyro-Babylonians prove conclusively that they were well in advance of other lands in medicine. They had some knowledge of chemistry and pharmacy and they had specialists in the various parts of the body. Dissection was a sacrilege and consequently they had no knowledge of anatomy except what little could be gathered by the embalmers. Their therapeutic agents included many filthy ingredients. The Greeks gathered fragments of information from the Egyptians and the Assyro-Babylonians. Chinese medicine for forty centuries was little more than that of Hoang-ti who died 2600 B. C. Their knowledge of physiology and anatomy was wholly fantastic. India made some advance in surgery and infant feeding.

The founders of medicine are the Greeks. Aesculapius, possibly a mythical individual, is credited with being the great moving spirit of the early development. He is supposed to have lived about 1200 B. C. The poets make him the God of Medicine, and many temples were erected in his honor; in these, hygiene, empiricism and religious imposture were practiced by the priesthood, who claimed to be lineal descendants of Aesculapius and heirs of his medical knowledge.

Hippocrates, born 460 B. C., was the son of a priest of the Aesculapian temple at Cos and was given the customary hereditary knowledge of medicine. He was not content therewith and made observations, collected facts, inculcated rational principles of investigation and started the separation of medicine from jugglery and superstition. The art of Aesculapius became the science of Hippocrates. His physiology and pathology, purely hypothetical and crude, endured for two thousand years in a more or less modified form. He wrote extensively and at least twelve of his works now in existence are acknowledged to be authentic. His anatomy was learned from a skeleton and the living figure. He trephined the skull, tapped the abdomen and used a number of chemical substances for catharsis, emesis, etc. The constitution of matter was then held to be fire, water, earth and air. From these there were eight properties: hot, cold, moist, dry, hot and dry, hot and moist, cold and dry, cold and moist. The body had solids and humors. The humors consisted of blood, bile, black bile and phlegm. The humors were affected variously by the properties of matter as

enumerated and hence one or another disease resulted. The great physician had a theory to the effect that there was in the body a vital force which guarded against disease. We might safely conclude that he was the father of the modern theory of immunity; what matters the name?

His therapeutics were devoted toward the maintenance of the vital force, and were largely bleeding, famine diet and purgation. He also used diuretics and expectorants with a few empirical remedies and hygienic rules. The thing which above all makes him the Father of Medicine is that he stood for the making of extended and careful observations and the construction of theories only upon the basis of facts. The followers of Hippocrates were known as the Dogmatists; they soon yielded to the innate love of speculation and medicine promptly retrograded. Dissection was forbidden by law and hence there was little chance for medicine to advance.

Plato attempted to be a physiologist as well as a philosopher, but his ideas were purely fantastic. He lived from 430 to 348 B. C.

Aristotle was on the scene from 384 to 322 B. C. In his time all the sciences made remarkable advances. He dissected many of the lower animals. He discovered the nerves and examined the brain and its membranes. He found the heart to be the origin of the blood vessels. He knew the function of the stomach. In fact, he made observations upon nearly all organs. He was the founder of comparative anatomy and physiology. Necessarily many of his conclusions were erroneous. He taught: "The philosopher should begin with medicine; the physician should end with philosophy."

Praxagoras, a contemporary of Aristotle, distinguished between the arteries and the veins and made use of the pulse for diagnosis. The trachea had previously been known as an artery and Praxagoras believed the vessels which lead from the heart carried air and hence he named them arteries. The spurting blood from a cut artery was due to an abnormal condition existing by virtue of the cut and which caused the blood to get into the artery, where it did not belong. This theory persisted until the seventeenth century.

Alexander the Great, who died 324 B. C., had great interest in science. His successor, Ptolemy Soter, was even more enthusiastic for science and founded the Alexandrian library, placing Aristotle in charge of it. A medical school was organized which gained a remarkable reputation and remained the

popular place from which to graduate even to the time of Galen, five hundred years later. In this school dissections were both allowed and encouraged. Herophilus dissected over two hundred human bodies and attained renown as an anatomist. He described the brain with remarkable accuracy and recognized the nerves as organs of sensation. Calamus scriptorius and duodenum are a part of his nomenclature. He came near robbing Harvey of the honor of discovering the circulation of the blood.

Erasistratus, also of the Alexandrian school of about the same period as Herophilus, was a great anatomist and also a physician. He discovered the tricuspid valve and taught that the arteries contained only spirits except in disease, when they contained blood. He was a fearless surgeon but hesitated to open the abdomen for abscesses of the liver and spleen. Although the Alexandrian school and library continued several centuries, there were no more great scientists and no more discoveries of importance.

About the middle of the third century B. C. there arose and flourished a system known as the Empirics. The chief proponent of this school was Serapion. They despised the studies of anatomy, physiology and pathology, and devoted themselves entirely to the observation of the sick and a comparison of experiences. They made practically no worth-while discoveries. Medicine was divided by them into three divisions: surgery, dietetics, and pharmacy. A specialty was made of lithotomy, hernia studied and many surgical instruments were invented.

Many Greek physicians educated in the schools of the east gravitated to Rome. Among these was Asclepiades, who taught that the body is constituted of atoms and pores through which the atoms pass. In his therapeutics he directed attention to the opening and closing of pores. He used principally pleasant hygienic measures.

Themison classified the pores into constrictive, relaxed or mixed and his system of treatment, based upon the state of the pores, was known as Methodism and was a purely fanciful creation.

In the first century A. D. there came Celsus who compiled an encyclopedia of medical information, more especially upon surgery. He described operations for hernia, calculus, cataract, hydrocele, aneurysm, harelip, and amputations. He mentions the use of the ligature to stop hemorrhage.

Dioscorides, a contemporary of Celsus, compiled the first *materia medica*. He was

regarded as an authority even down to the sixteenth century.

In these early centuries of our era the physicians were prone not to accept the teachings of their predecessors, but to develop their own theories of practice. Each had his own school and as many students as possible. They often promised to have their students ready to practice within six months. There was much wrangling, jealousy and ill-feeling. Polypharmacy became the rule and many prescriptions contained from forty to sixty ingredients often of such materials as brains of camel, rennet of sea-calf, excrement of crocodile, heart of hare, blood of turtle, testicle of wild boar, etc. The hydropathists and the public baths came into prominence and professed to cure all of the ills to which human flesh was heir. The douche was then first used medically.

Galen, born 130 A.D., came to Rome in 166, having been educated in grammar, history, philosophy, mathematics and later in medicine. He was an indefatigable reader, experimenter and writer. He contributed to nearly every branch of medicine, and followed closely the teachings of Hippocrates. He divided the body into solids, humors and spirits. Natural spirits originated in the liver and were carried to the heart and united with the air to form animal spirits. His anatomy was learned from two skeletons which he saw in Alexandria and from the study of apes and swine. He thought that the veins originated in the liver but he believed the arteries contained blood. He also learned that the nerves came from the brain or spinal marrow and that there are nerves of sensation and of motion. He described the various organs of the body with a minuteness in advance of that of Hippocrates and Aristotle. He thought the uterus had two cavities from one of which came the male and the other the female children. One testicle produced female and the other male children. This is a fair sample of his many fanciful and erroneous theories. He advanced an endless number of theories as he wrote over seven hundred books. Galen gave temporary brilliance to medicine.

The "age of coma" for Europe ensued soon after Galen and lasted until the fifteenth century. The Greeks and the Alexandrians kept some of the skill and learning of the ancients but western Europe lost all of the science and all but a bit of contemptible art. Medicine fell into the hands of the clergy who depended upon prayer as well as physic and who used their knowledge to impose upon the ignorant and superstitious. The layman who dared to

practice was dealt with harshly if his patient did not do well. It was an eye for an eye and a life for a life.

In the fourth century there was a Greek, Oribasias, who did much for medicine, more, however, as a compiler than as an investigator. He has been called the "ape of Galen" for he followed the teaching of that master in physiology and anatomy. In the sixth century there was another Greek physician, named Aetius, who has indelibly left his name for posterity. He, too, did compiling and a preserving of the work of earlier physicians. Aetius was the first Christian physician but both his christianity and medicine were tinctured with superstition.

In the latter part of the sixth century Alexander of Tralles wrote twelve books compiling the results of his experiences and studies. He was an original thinker and did not hesitate to differ with Galen. His work suffered from superstition and he used charms and talismans against disease.

Paul of Aegina is the last and perhaps best known of the Byzantine physicians. He studied at the Alexandrian school and became eminent in surgery and midwifery. He is sometimes spoken of as the founder of obstetrics, in which he was summoned to assist the Arab midwives. Ordinarily the Arabs did not allow men to function at accouchements. The Alexandrian school was burned in 640 A. D. and there were no more Greek physicians of note until the fourteenth century.

In the eighth century there was an attempt on the part of Charlemagne to revive an interest in scientific medicine but without great success and there are no names of great medical men associated therewith.

In Arabia and Spain schools were founded at Bagdad and Cordovia and became centers of learning and the development of science was encouraged. A great library was collected and the works of the Greeks were translated and studied. Three names of this period are remembered. They are: Honain, Rhazes and Avicenna. Honain translated the Greek medical writings; Rhazes was in charge of the great hospital in Bagdad for many years and left a work entitled "Continens" which consists of selections from many writers upon nearly every phase of medicine and surgery. He was the first physician to describe smallpox and measles. Avicenna, born 1000 A. D., known as "The Prince of Physicians," was a brilliant but erratic character. He left a book entitled the "Canon" which became a classic, and a text book for physicians for six hundred years. It was a compilation containing the philosophy of Aristotle and the physiology, anatomy and practice of Galen.

Among the Arabs in Spain there were two prominent medical writers in the twelfth century: Albucasis and Avenzoar. Albucasis was distinguished for his work in surgery and obstetrics. He left a highly interesting book on surgery which depicts many instruments and operations used at that time. Avenzoar added to the knowledge of the diseases of the chest describing pericarditis and inflammation of the mediastinum. The Arabs added relatively little to the sum total of medical knowledge. Law forbade dissection. Prejudice prevented male physicians from doing work upon women which in any way exposed them. To the *materia medica* they added alcohol, senna, manna, syrups, pomades, plasters and ointments. Chemistry was inaugurated by the Arabs.

Along about the eleventh century Italy, several centuries in advance of other European nations, developed an elevated status of civilization, education and culture; medicine reflected this glory. By the fifteenth century Italy had sixteen universities—as many as all the rest of Europe. Medicine was much encouraged, but the science of it was not advanced. Dissection was forbidden, and the teaching was entirely from old masters.

The first public dissection of a human body in seventeen hundred years was done by Mondino in 1315, a professor at Bologna. He wrote a short manual of anatomy which was long the standard textbook of anatomy. Dissection, however, remained in disrepute until the sixteenth century. In this century however there were a number of prominent anatomists among whom we mention Sylvius, Vesalius, Fallopius, Fabricius and Eustachius. Sylvius was the oldest of this group and did much to popularize the study of anatomy. Vesalius was the pupil of Sylvius and became the greatest anatomist of the age. He excelled Sylvius by daring to deny the authority of Galen and to expose his errors. "*Fabrica*" is the publication which made Vesalius famous and established anatomy as a science. Fallopius was an accurate observer and deserves nearly equal credit to Vesalius. Fabricius was the instructor of Harvey and made important contributions to the subject of generation and disproved the Galenic idea that the uterus had two cavities. He also discovered the valves in the veins and did much for the great discovery which Harvey was to make. Other great anatomists of the period were, Colombo who did a great deal of vivisection and who discovered the pulmonary circulation, and Leonardi da Vinci, the creator of artistic anatomy, who dissected over one hundred bodies, and left mirror notes which

have been since published in six folio volumes to surpass any anatomical delineations of his own time or that of many years later.

Physiology was far from keeping pace with anatomy. Galen's idea that the body was nourished by semen had been refuted and blood had been given some of the credit it deserved. Servetus and Cesalpinus had all but discovered the circulation of the blood.

Fernel was a professor at Paris in the middle of the sixteenth century and represented the orthodox medicine of the period better than any one else. He systematized medicine and classified disease. He used the pulse to indicate the energy of the vital faculties and the condition of the heart and arteries, and the urine to indicate the qualities of the humors and the state of the liver and the veins. His remedies consisted of evacuants, purges and alteratives. Arabic authority had frowned seriously upon bleeding and it had nearly passed, but it was now revived. As for the efficacy of the therapeutic measures, little can be said and confidence in physicians had been gradually lost. Quacks and impostors prevailed and physicians began to see the stupidity of their course and attempted a reform. In this connection are mentioned the names of Argentier, Botal, Joubert and Paracelsus.

To the latter, Phillipus Aureolus Thephrastus Bombastus Paracelsus, a medical graduate of the University of Ferrara, and a noisy, egotistical, capable, shrewd individual, is due much of the credit for the reform. He publicly burned the works of Galen and of the Arabians and declared there was more wisdom in the hairs of his beard than in all the writings of the ancients; and he had no beard. His criticism was destructive and in no wise constructive. He did see the relation between goiter and myxedema, introduced chemical therapeutics and introduced the use of mineral baths.

Obstetrics has been confined mainly to midwives except in the case of emergencies. Thomas Raynalde in 1545 published his "*Byrth of Mankynde*" and upon this work obstetrical practice was based during the next century.

Surgery, during the dark ages, was entirely neglected by the clergy in whose hands was medicine. What knowledge existed was in the hands of low classes—barbers and bath keepers—who bandaged wounds and opened veins. Itinerants "cut for stones." "*Grand Chirurgie*," a book by Saliceto, an Italian, written during the thirteenth century, remained the standard text on surgery until the work of Guy de Chauliac appeared in the fourteenth century. The next work

of authority was that of Paré of the sixteenth century. He started as a barber's boy and infused new life into surgery and became surgeon to four kings. He came to prominence first because he substituted the ligature for boiling oil to stop hemorrhage of wounds. Before his time amputations were rare because it was all but impossible to control the bleeding. He contributed to nearly every phase of surgery. It was two centuries later when surgery was dissociated from barbers.

Jerome Gardan and Conrad Gesner contributed to the literature of the sixteenth century but not to the advancement of the science of medicine.

During the sixteenth century a number of new operations were introduced. Among them were trephining, couching the eye for cataract, thoracic and abdominal paracentesis, and rhinoplasty. Sanctorius invented the trocar and cannula. Although surgery and anatomy made progress during the sixteenth century medicine was stagnant.

With the seventeenth century the hold that Galen and Aristotle had upon the thought of the people of the world began to be shaken and scientific research began. Bacon founded inductive philosophy and Descartes outlined scientific principles.

Harvey, born in 1578, was a hard student, an industrious experimenter, and a concise and logical writer. He demonstrated the circulation of the blood to his students in 1615, fifteen years before the discovery was given to the world. His findings met with ridicule and opposition and he was sneered at as the "Circulator." Marcellus Malpighi, 1628 to 1694, soon demonstrated the capillary circulation and sustained Harvey who lived to see his work generally accepted and himself honored.

Van Helmont, a contemporary of Harvey, did a great deal to show the absurdities of the old medical doctrines, but unfortunately he offered a weird far-fetched theory of his own, known as spiritual vitality.

By the middle of the seventeenth century medical discoveries and theories caused tremendous agitation and there were "isms" and "cults" of all sorts. There were chemical physicians, electric conciliators, mechanical physicians, etc. Sanctorius, originator of the mechanistic school, ate his meals on a scale for years and really started the science of metabolism. Borelli applied the law of mechanics to muscular action. Others of this school who left their imprint upon history were Bellini, Baglivi, Senac, Boerhave, Mead and Pitcairn. This school went to such absurdities as endeavoring to weigh a sper-

matazoon and to estimate a man's age from his pulse rate.

Thomas Sydenham was one of the few of this period who contributed to the advance of practical medicine. He endorsed none of the theoretical follies of the age and stood for the unbiased study of bedside phenomena. He described chorea, scarlatina, bronchial pneumonia, gout and hysteria.

Thomas Willis (1621-1675), described typhoid fever, puerperal fever, dementia paralytica, and myasthenia gravis.

The seventeenth century surgery was that of the earlier periods; two names, Fabry of Germany and Richard Wiseman of England, deserve special mention for maintaining surgery at the level which it had already reached.

Robert Boyle (1627-1691), is known as "the father of modern chemistry," as he did a great amount of original investigation in chemistry and therefore deserves a place in the history of scientific medicine.

Louisa Bourgeois made important contributions upon sterility, labor and other problems of female diseases. Francis Mauriceau established obstetrics and diseases of women as a science by publishing a work on the subject in 1668; this was translated into many languages and exerted tremendous influence all over Europe. Julien Clement delivered the queen and other prominent women from 1670 to 1682 and male midwifery became the fashion both in France and England. The Chamberlins, an English family of physicians, invented the forceps and sold the idea to two Dutch physicians, all of whom kept the idea secret. To John Palfyn goes the credit for designing the modern instrument.

Contributing to anatomical knowledge in the seventeenth century were many men, such as Thomas Wharton who made extensive investigations on the structure and function of the glandular system; Aselli who discovered the lacteals; Pecquet, who found the thoracic duct, and described the flow of the chyle; Bartholin, Steno, and Vieussens who studied the brain; Willis who described the circle of Willis and named the cerebral nerves; and Schneider, Spigelius, De Graef. Meibomius and Peyer whose names are identified with the structures they discovered.

Newton, Kepler, and Descartes advanced our knowledge of vision and led to the discovery of the microscope. Leewenhoek was the first to see bacteria and to lay the foundation for the germ theory of disease. He also demonstrated the existence of spermatozoa in the semen.

The eighteenth century opened with three great Germanic physicians: Boerhaave,

Stahl and Hoffman. Boerhaave was the most famous; his knowledge extended to all phases of medicine and he was the highest authority upon botany and chemistry. He was a voluminous writer and was most noted for his bedside teaching. Stahl is sometimes credited with being the originator or precursor of homeopathy. He also called attention to the great influence of the mind over the body and was the forerunner of psychotherapy. Hoffmann taught that disease results from the contractions or relaxations of the capillaries. Cullen was a skillful Scotch physician who taught that disease was largely neurotic in character. John Brown was a pupil of Cullen and believed that disease resulted from lack of stimulation or from too much stimulation; he had a table of diseases and remedies and the only duty of a physician was to learn the table and to make diagnoses. His system penetrated to Germany, France and Italy. Erasmus Darwin had a unique system dealing with the sympathetic action of the organs; it perished with him.

Albrecht von Haller (1708-1777), discovered the irritability of muscle tissue and made many other important contributions to physiology and is known as the father of physiology.

Xavier Bichat (1771-1802), had a useful but short life; he discussed the relative place of vital and physical forces in the body and discovered that the parenchyma of organs is made up of simple tissues.

Lieberkuhn was one of the first of a group of microscopical anatomists, he was the inventor of the solar microscope and with it he demonstrated in a new way the circulation of the blood.

Senac added to the anatomical knowledge and studied the diseases of the heart. Thebesius named the foramina of the heart. Mascagni demonstrated the lymphatic system. The physiology of generation was studied by Haller, William Hunter and Morgagni. Priestly and Lavoisier discovered oxygen and led to an understanding of the physiology of respiration by Lavoisier, Laplace and Lagrange.

Théophile de Bordeu set forth the significance of the pulse in disease and wrote upon the internal secretions. Leopold Auenbrugger in 1761 described percussion of the chest for the purpose of detecting abnormal conditions. In this same year Morgagni published a collection of postmortem records, described many new diseases and associated pathological conditions with bedside findings. This was the beginning of true pathology.

In 1743 in France and 1745 in England

the association of barbers and surgeons was abolished and surgery made rapid strides and became the peer of medicine, as it attracted a better class of men. Desault in Paris established surgical clinics. Cheselden in England devised a number of new operations, especially lithotomy and one for occluded pupil, and introduced the tourniquet. Valsalva discovered that deafness was due to closure of the Eustachian tube, and contributed to aural surgery. John Hunter was one of the greatest lights of surgery and physiology. He operated for aneurysm and described the hard chancre. He was the founder of surgical pathology by his investigations of the teeth, the blood, inflammation, gunshot wounds, and regeneration and transplantation of tissues. Larrey, surgeon to Napoleon's army, devised our present ambulance system of evacuating the wounded from the battle fields.

Auld, Smellie, Baudelocque and others in this period defined natural labor, taught the use of the pelvimeter and forceps, introduced symphysiotomy and brought obstetrics to a high state of development.

The introduction of vaccination by Edward Jenner, (1749-1823) was the outstanding event of the eighteenth century. Unselfish devotion and pure love of humanity was gloriously exemplified in this great country physician. The greatness of his work and the nobleness of his character were universally recognized before he died.

The nineteenth century was a period of exceptional activity. The one to initiate this activity was Phillipe Pinel. He was followed by Corvisart, who made active use of percussion and was Napoleon's favorite physician. Laennec (1781-1826), devised the stethoscope and wrote a book on auscultation and diseases of the chest. Louis was the originator of medical statistics and wrote a great classic on phthisis, calling attention to the apex as the favorite location of phthisis; another on typhoid fever, giving the disease its present name. His statistics showed the harm of blood letting in pneumonia and caused its discontinuation.

Bretonneau (1771-1862), did great work in diphtheria. He and Velpeau first located the main lesions of typhoid in the Peyer's patches. They advanced the doctrine of specificity in diseases. Cruveilhier described disseminated sclerosis. Ricord differentiated gonorrhea and syphilis. Graves and Stokes introduced the practice of counting the pulse by the watch and Graves described exophthalmic goitre. Bright, Addison and Hodgkin each described the disease associated with his name. About the same time Parkinson described paralysis agitans. Wun-

derlich introduced the clinical thermometer. Schonlein described purpura hemorrhagica and began to lecture in German instead of Latin, which had been the prevailing language for all scientific lectures. Skoda advanced physical examination of the chest. Rokitsansky was a great pathologist; Semmelweis recognized puerperal fever as a bacterial disease; and Oliver Wendell Holmes did a great deal to have puerperal fever understood in America. Willan, Bateman, Alibert and Hebra were renowned dermatologists.

In America, Otto described hemophilia; James Jackson, alcoholic neuritis; John Ware, delirium tremens; and J. K. Mitchell the spinal arthropathies; Gerhard differentiated between typhus and typhoid fevers. Daniel Drake described milk sickness.

The great anatomists of the age were the first, second and third Alexander Monros, John and Charles Bell, Robert Knox, Henry Gray, Bichat, Henle, Hyrtl, Joseph Leidy and Oliver Wendell Holmes. Henle was the founder of pathology. Schleiden and Schwann developed the cell theory and furthered the study of histology. Virchow is the great name in cellular pathology. John Hunter was the great eighteenth century surgeon, anatomist and pathologist. Astley Cooper was a pioneer in ligating arteries. Aston Key a pupil of Cooper tied the external iliac, the subclavian and the carotid for the first time. Colles has a law and a fracture. Syme has an amputation and was the teacher of Lister. Dupuytren has a contracture. Velpeau, Malgaigne, and Nelaton were great surgeons of France. Pirogoff was a noted surgeon of Russia.

Ophthalmology was established by the work of two Langenbecks, Dieffenbach, Stromeyer and the elder Graefe. Orthopedic surgery and plastic surgery were created by Delpech, Dieffenbach, Brodie, Fergusson, Stromeyer and the elder Graefe. Physick of the University of Pennsylvania is the father of American surgery. Dr. John Warren of Boston did the first shoulder amputation in 1781 and his son was an able plastic and orthopedic surgeon. Mott, Valentine and Wright Post followed Cooper in ligating large blood vessels.

Nathan Smith founded three medical schools and was a successful surgeon; he also founded the American Medical Association. Marion Sims created the specialty of operative gynecology by his brilliant work on vesico-vaginal fistula and among his brilliant followers have been Emmet, Battey, Thomas, Mott, Howard Kelly and others. Benjamin Rush was a voluminous writer and a famed physician. Francis Rombery,

John Bard, Hosack and Horner, are other prominent physicians of the period. Samuel Bard was physician to George Washington.

Crawford W. Long was the first to use ether anesthesia and was soon followed by Morton, in an independent discovery. Pasteur was the father of bacteriology and Lister of antiseptic surgery. Manuel Garcia invented the laryngoscope and Helmholtz the ophthalmoscope. Czermak and Turck made practical application of the laryngoscope and established the specialty of laryngology. Charles Darwin of evolution fame did a great deal for experimental medicine, embryology, comparative anatomy and physiology. Magendie and Claude Bernard were the founders of experimental physiology and medicine. Johannes Miller was famed for work upon the physiology of the nervous system. William Beaumont did epochal work in the physiology of digestion. The physiology of the circulation was studied by Carl Ludwig and Poiseuille. Stephen Hale was the pioneer in measuring the blood pressure. Robert Koch discovered the tubercle and cholera bacilli. Roux and von Behring discovered the diphtheria antitoxin and were the founders of serum therapy. Metchnikoff, Wright and others originated vaccine therapy for bacterial diseases. Bordet and Wassermann deserve credit for founding sero-diagnosis. Paul Ehrlich established specific chemo-therapy. S. Weir Mitchell was a famous neurologist and poet.*

*A Review of the Peaks of Medical History—An Outline of the Evolution of Medicine for the Use of Medical Students and Practitioners—by Charles L. Dana, A. M., M. D., LL. D., Professor of Nervous Diseases, Cornell University Medical School; President of the New York Academy of Medicine; etc.; Illustrated with 43 Full-page Plates and 16 text illustrations; Second Edition; Paul P. Hoeber, Inc. New York; 1928; \$3.00.

POISONOUS SNAKES AND TREATMENT OF THEIR BITES

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(Note:—At a recent meeting of the El Paso County Society, at El Paso, Texas, Dr. Afranio do Amaral gave a talk on the treatment of snake-bite poisoning by Antivenin. Representing the substance of his talk, the following material has been taken from the October, 1927, issue of the Bulletin of the Antivenin Institute of America, with the two illustrations shown. Following the article is a communication from Col. M. L. Crimmins, U. S. Army, retired, who is the Texas representative of the Antivenin Institute.)

DIFFERENTIATION OF POISONOUS SNAKES

From a purely scientific standpoint, most snakes must be considered venomous, as they possess on each side of the head, beyond the eye, a more or less well-developed gland (supralabial) that yields a viscous se-

cretion, capable of exerting a toxic or destructive action whenever it comes in contact with the inner tissues of animals. From a practical standpoint, however, only those snakes are considered poisonous which, upon biting, are able to inject the secretion of their supralabial glands more or less deeply into the tissues of their prey or enemy. These snakes are included in two groups, which in Ophiology are called "proteroglypha" and "solenoglypha."

The proteroglyph ophidians possess one small fang longitudinally grooved and situated one on each side in the upper and front part of the mouth; each fang is implanted in the anterior portion of the maxilla and this is firmly attached to the other bones of the skull. The proteroglyph snake fangs are practically devoid of any motion and this is one of the reasons why we know of so few bites inflicted by these snakes in this country. Another reason lies in the fact that the members of this group are rather tame or of gentle and amiable temperament

and have a comparatively small mouth (Fig. 1). The "Coral Snakes" are the only representatives of this group in the Nearctic zone.

The solenoglyph snakes are provided with a very large fang, hollow like a hypodermic needle, and situated one on each side in the upper and front part of the mouth: but, contrary to what is found in the proteroglyph, these fangs are freely movable in many directions, as the maxillary bones in which they are implanted are very loosely attached to the skull, but very closely connected with powerful muscles (Fig. 2). These snakes, which are responsible for almost all the accidents reported, are most commonly called "Pit-Vipers," because they bear on each side of the snout, between the eye and the nostril, a supplemental pit or hole, which is never found in other snakes.

The distinctive characters of the representatives of these two groups in the Nearctic zone may be summarized in the following key:

- | | | | |
|------------------------------------|--|---|--|
| (a) Proteroglyph
"Coral snakes" | { Body slender and cylindrical, of red color, with black rings edged with yellowish; head as wide as neck (genus <i>Micrurus</i>) | { Head black to about the eyes, then yellow; nape with a broad black ring followed by a yellow one—

Head all black; nape with a yellow ring followed by a black one— | { <i>M. fulvius</i> (Harlequin Snake).

<i>M. Euryxanthus</i> (Sonoran Coral Snake). |
| (b) Solenglyph
"Pit-vipers" | { Body voluminous and flat, of dull colors; head wider than neck. | { Tail without rattle { Head top covered with shields—genus <i>Agkistrodon</i>

{ Head top covered with shields—genus <i>Sistrurus</i>

{ Tail with rattle { Head top covered with scales—genus <i>Crotalus</i> | { <i>A. mokasen</i> (Copperhead).
<i>A. piscivorus</i> (Cotton-mouth Moccasin)

<i>S. catenatus</i> (Massasauga)
<i>S. miliarius</i> (Pigmy Rattler)

<i>C. horridus</i> (Timber Rattler)
<i>C. adamanteus</i> (Eastern Diamond-back Rattler)
<i>C. confluentus</i> (Prairie Rattler).
<i>C. atrox</i> (Western Diamond-back Rattler)
<i>C. exsul</i> (Red Rattler)
<i>C. creganus</i> (Pacific Rattler)
<i>C. mitchellii</i> (Bleached Rattler)
<i>C. molossus</i> (Black-tail Rattler)
<i>C. cerastes</i> (Horned Rattler)
<i>C. tigris</i> (Tiger Rattler)
<i>C. lepidus</i> (Green Rattler)
<i>C. triseriatus</i> (Spotted Rattler)
<i>C. willardi</i> and perhaps 2 or 3 more species |

DISTRIBUTION AND HABITS OF POISONOUS
SNAKES**Proteroglypha**

Micrurus fulvius, popularly known as the Harlequin Snake, is found all through the Southeastern States from North Carolina to Florida and westward through the Gulf States to Mexico. It abounds in humid places, and lives under the ground or in dead leaves and feeds on other snakes or on small subterranean lizards.

Micrurus euryxanthus, the Sonoran Coral Snake, is found more toward the Southwest, being apparently limited, in the United States, to the region between the Rocky Mountains and the Colorado River and thence south into Northwestern Mexico and California. This snake, although accustomed to living in dryer places, is also found under the ground and feeds on other snakes or burrowing lizards.

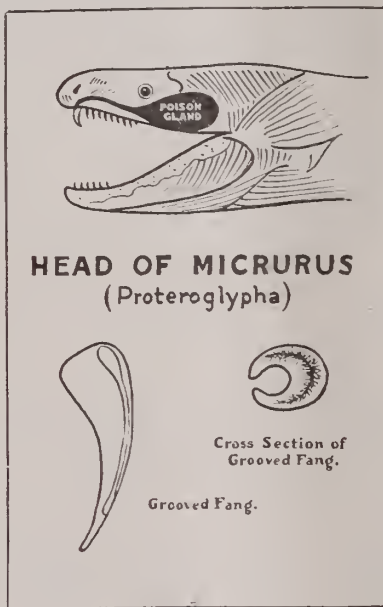


Fig. 1.

The two species of *Micrurus* must not be mistaken for other red or bright-colored ringed snakes also called "Coral-snakes," which, however, are not venomous. The false coral snakes can be told both from *Micrurus fulvius* and *M. euryxanthus* because in the former each yellowish ring is bordered by two black ones, just the reverse of the arrangement in *Micrurus*, in which the black ring is bordered by two yellowish ones.

Solenoglypha

Agkistrodon mokesen, the Copperhead, also called Highland Moccasin, Chunkhead, Deaf Adder, Pilot Snake and Poplar Leaf, inhabits the Eastern States from Massachusetts and Southern New Hampshire to Northern Florida west to central Illinois,

Kansas, Arkansas and Texas. It is found in hilly and in rocky places, sometimes near streams, and feeds on mice and also frogs and small birds. This species causes about two-thirds of the bites that are reported in the Eastern States, especially in Pennsylvania, Maryland, Virginia and West Virginia.

Agkistrodon piscivorus, the Cotton Mouth Moccasin, also called the Water Moccasin, lives in the lowlands from Southeastern Virginia to Florida and the Keys and north through the Mississippi Valley to Southeastern Missouri and Southern Illinois and west through Texas to the Rio Grande. It is usually met with in swampy places or even in water and feeds on batrachians, fish and also rodents. The moccasin seems to be responsible for the majority of the bites observed in the Southeastern and the Gulf States, excepting Texas.

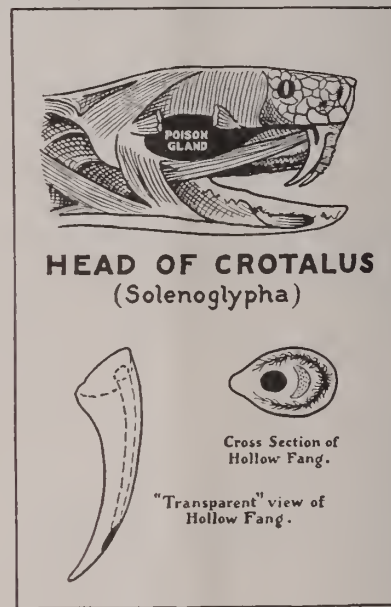


Fig. 2.

Sistrurus catenatus, the Massasauga, is represented by two races, one living from Western New York through Southern Ontario (Canada) and the Southern Peninsula of Michigan to Kansas, and the other being found from Western Kansas through Oklahoma and Western Texas to Southeastern Arizona and Northeastern Mexico. This wide-spread species inhabits prairies and swamps and lives on small rodents and batrachians.

Sistrurus miliarius, the Pigmy Rattler, also called Ground Rattler, has about the same range as the Cotton Mouth Moccasin, since it is found from Southeastern North Carolina to Florida, west through the Gulf States to Western Texas and Oklahoma and north through the Mississippi Basin to

Arkansas and Southern Missouri. The Pigmy Rattler seems to prefer dry ground and is usually found among leaves or in grass, where it finds rodents upon which it feeds. In the lowlands of Eastern Mexico lives a third species of this genus, to wit, *Sistrurus ravus*, which shows about the same habits as the North American Massasauga. Both the Massasauga and the Pigmy Rattler do not grow very large and usually secrete very little venom. Nevertheless, several cases are known of bites and even death (of young people) caused by them.

Crotalus horridus, the Timber Rattler, in many places known as the Banded Rattler, Black Rattler or Canebraker, is well-distributed all over the Northeastern States to Georgia in the South and to the Great Plains in the West. It is usually found on ledges or in crevices of rocks, in woody and hilly districts and feeds on all sorts of rodents and occasionally on birds. This species is not very irritable and causes comparatively few bites.

Crotalus adamanteus, known as the Eastern Diamond-back Rattler, is the largest of all poisonous species of North America, where its range extends from Southern North Carolina to Florida and the Keys and west to Louisiana and the Mississippi River. It is found about swamps and feeds on rodents. The poisoning caused by this snake is, as a rule, very severe, producing extensive mutilation, when it does not end fatally.

Crotalus confluentus, the Prairie Rattler, is found in the region of the Great Plains from Oklahoma, Kansas, Nebraska, South and North Dakotas to the adjacent region of Canada and west to the Rocky Mountains or a little beyond. As its common name indicates, it is a typical snake of the prairies; it feeds on all sorts of small rodents.

Crotalus atrox, the Western Diamond-back Rattler, is found more toward the South and West, its range extending from Texas to California, and south into Mexico and Lower California. It appears to like dry and rocky places and also agricultural districts, where it secures the necessary supply of rodents on which it subsists. This species alone is responsible for about one-fourth or one-fifth of the cases of poisonous snake bites reported in this country every year, with a death rate as high as 35 per cent.

Crotalus exsul, the Red Rattler, from a morphological standpoint, is the nearest relative to the previous species. Its range extends from Southern California into Mexico, Lower California and the Islands of the Gulf of California, therefore, overlapping to some extent the range of *Crotalus atrox*. It is

found in rocky places, seldom away from cactus groves, and feeds on rodents.

Crotalus oreganus, the Pacific Rattler, in some places known as the Black Rattler, is found all over the West Coast, from British Columbia (Canada) to Southern California and east to Western Idaho, Nevada, and Arizona. It usually looks for shelter in fountainous and woody districts and feeds on rodents and occasionally on lizards.

Crotalus mitchellii, the Bleached Rattler, inhabits the territory between Arizona, Sotheastern California and Lower California, where it finds many rocky places, cactus groves and all kinds of thorny shrubs, where it hides from enemies during the day. As all the other rattlers, it comes out at night to seek food, which consists of rodents and lizards.

Crotalus molossus, the Blacktail Rattler, inhabits the Southwest from Western Texas to Southern Arizona and the highlands of North Mexico, and is also said to be found on San Esteban Island in the Gulf of California.

Crotalus cerastes, the Sidewinder or Horned Rattler, is found in the sand of the desert plains from Northeastern and Lower California through Southern California to Southern Utah, and Southwestern Nevada and south into Arizona. It feeds on lizards and occasionally on rodents.

Crotalus tigris, the Tiger Rattler, has about the same range as the Sidewinder, namely, Southern California, Southern Nevada and Arizona, but seems to feed on rodents only.

Crotalus lepidus, the Green Rattler, is found in the mountains from West Texas, South New Mexico and Arizona and the adjacent territory in Mexico. Very scanty information is available on the feeding habits of this species, but it seems to take mice and lizards very readily.

Crotalus triseriatus, called the Spotted Rattler, is a small species confined to the mountains of Southern Arizona and the central plateau of Mexico, and feeds on lizards. In the United States, this species has heretofore been incorrectly called *Crotalus pricei*.

Crotalus willardi is another small species and has heretofore only been found in the mountains of Southeastern Arizona.

Besides *Crotalus terrificus*, the Neotropical Rattler, there are perhaps a few more forms of rattlesnakes, numbering about two or three, all of which are confined to the Lower California region. Their status, however, is not yet very clear, so that they do not deserve special mention in this paper.

BEHAVIOR OF POISONOUS SNAKES

The behavior of the Nearctic poisonous

snakes varies widely according to the species considered. As a rule, our Coral Snakes are tame, whilst the Pit-vipers are more or less excitable. Both *Micrurus fulvius* and *M. euryxanthus* have secretive habits and usually do not bite unless hard pressed by some one unaware of their venomous nature.

The Copperhead is a rather vicious snake, which gives no warning of its presence while in the open, as it moves very suddenly and begins striking in any direction. In captivity, however, it becomes tame very rapidly.

The Cotton Mouth Moccasin attacks everything that moves about it; it first widely opens its mouth and then strikes in any direction from which it perceives danger. The common name is taken from the fact that its mouth is whitish within, thus contrasting very noticeably with the color of its body, which is rather dark or blackish.

Of the Rattlers, the species of the West Coast seem to be the least irritable, as Klauber recently pointed out in the following paragraph:

"It is probable that there is as much difference in temperament among the individuals of any one species of rattlesnakes as found in this area, as there is an average difference between the several species. All four local species seem to be relatively inoffensive. Invariably they attempt to escape, and I have yet to experience in the field an instance of a snake adopting an offensive attitude. While some individuals will put up a fight when cornered, their actions are apparently entirely defensive. Those found moving are usually more ready to fight than those which are coiled and resting. Some individuals will not even attempt a defensive fight and may be roughly handled without showing the least disposition to bite, or even rattle. *C. mitchellii* ordinarily exhibits a somewhat quicker readiness to fight than the others. *C. exsul* is very definitely the least offensive, and in this differs considerably from its nearest relative, *C. atrox atrox*. On only two occasions have I observed specimens of *C. exsul* to give notice of their presence by rattling before being disturbed; in both cases, in fact, they would have been passed by had they not rattled. There is, of course, no way of estimating how many hundreds of snakes I have passed closely in the field which have saved themselves by making no sound. In two cases recently I have found rattlers by hearing the characteristic "click" which they make when drawing themselves into a defensive coil, but without rattling. One of these was a specimen of *C. exsul*, the other, *C. mitchellii*."

Next to the Western Rattlers comes the Northeastern species, that is the Pigmy and the Timber Rattlers, in regard to which Ditmars has recently expressed the following opinion:

"Near and frequent contact with humans appears to have influenced the habits of our eastern reptiles. They usually keep close to sheltering holes or crevices, and when disturbed seek to escape as quickly as possible. Or they may try other tactics and remain quite motionless with the idea of the intruder passing them by unnoticed. They are not

nearly so vicious or apt to strike as the poisonous reptiles of the southerly latitudes. Accidentally stepped on or touched by the hand of the careless climber, they will instantly bite, as they are extremely nervous. They are to be seriously reckoned as a hazard these days of hiking, camping and auto picnicking, as the great majority of our growing legions of outdoor enthusiasts are quite devoid of woodcraft."

The two Southern Rattlers, *Crotalus adamanteus* and *C. atrox*, are by far the most excitable and most vicious of all the Nearctic reptiles. Of their behavior the best description that has ever been printed is that of S. W. Mitchell, which I shall quote in full as it appeared in his memorable work on Rattlesnake Venom, now out of print:

"When the Rattlesnake is in repose and unmolested, it sometimes lies at length, sometimes coiled or wrapped fold on fold in the loops formed by other snakes which may happen to be in the same box. So soon, however, as cause is seen for alarm, the snake extricates itself, if among others, and at once throws its body into the coil so familiar to any one who has seen serpents, whether venomous or not. Sometimes on the edge, more often in the center of the coil, the tail projects far enough to admit of its vibrating freely and with singular swiftness. The head is raised a little above the rest of the body, but not usually more than 3 or 4 inches, even in large snakes. The neck and upper end of the trunk are not thrown into complete circles, but lie in two or three abrupt curves across the mass of the coiled body. The snake is now in position to strike. While thus at bay, in an attitude of singular grace, the long black tongue is frequently protruded—a common movement among all serpents when irritated. Just before the blow the snake makes a hissing sound, which is caused by the act of expiration, and is due to the passage of air through the narrow glottis. It is louder in certain innocent serpents than in the *crotalus*.

"The mechanism of the forward cast of the body, which next occurs, is a very simple matter. The muscles which lie upon the convexity of the bending formed by the upper part of the snake are suddenly and violently contracted, so as abruptly to straighten the body, and thrust it forward in a direct line. The force resulting from this motion is not very great, as I have often ascertained when a snake has struck the end of a pole which I was holding, nor could it alone suffice to bury the fang in a tough skin were it not for the acts which follow and aid it. In effecting this forward thrust of the head and neck, the serpent employs only the upper part of its body, and consequently is unable, under any circumstances, to strike at a greater distance than one-half its length, while usually its projectile range does not exceed a third of its length. An impression prevails that when the snake lies coiled its head is raised very high to enable it to strike downward. It seems, however, to be of no moment in what direction the danger threatens, since it can at will cast itself forward, downward, or almost directly upward."

In regard to the direction of the coil, I have observed that in most of the cases, these rattlesnakes, upon being excited, coil up in such a way as to leave the left side of the body inside of the coil until it comes close to the neck which is doubled into an S-shaped loop. This loop is just what permits of their thrusting the head forward.

In some cases, as often happens with the Western Diamond-back Rattler when it is very angry, it gradually raises its head well up in the air from 10 to 15 inches or more from the ground, according to its size. Under these circumstances, it does not strike upward, but sideward or downward. However, when it is lying coiled, its head resting somewhere on its body, it can strike almost vertically upward, as the thrust often times forms an angle of nearly 70° with the underlying ground.

PREVENTION OF SNAKE POISONING

Snake poisoning with all its dreadful consequences, can be prevented in two ways, first, by avoiding snake bites; and, second, by applying a specific treatment against the effects of the bite.

1. Prevention of snake bites

Various means have been developed for the prevention of snake bites and they can be grouped into two main types of measures aiming respectively at (a) individual protection, and (b) collective protection.

(a) **Individual protection.**—Since it is known that, according to the different districts considered, from about 60 to 90 per cent of the bites of poisonous snakes are inflicted on one's feet or legs, it is simply a matter of common sense for one to wear shoes and heavy leggings to achieve the necessary protection, whenever one goes into a snake-infested district.

In this respect, a few poisonous snakes must be considered separately. The bites of the Copperhead and of the Timber Rattler, for instance, are sometimes inflicted on one's hands, because both of these snakes live on ledges and so may be encountered in the path of one who is trying to climb a rock, using his bare hands in order to help the ascension. In this case, therefore, the best thing for one to do is to avoid the use of his hands in order to climb where these venomous snakes may be found.

In the case of the Cotton Mouth Moccasin and the Florida Diamond-back Rattler, both of which live in marshy places, the conditions of the bite are also somewhat different. Since these snakes can reach as high as the thigh of one who is trying to negotiate a marsh or a stream, the best protection is afforded by a pair of rubber wading boots going up to the hip. Sometimes, as in the particular case of the Florida Rattler, that is known to grow to enormous proportions and have very long and strong fangs, it is advisable for anybody who wants to walk through swamps, to allow the upper part of the rubber wading boots to hang down over the knees, thus leaving an extra space between the two layers of rubber. In

this way, if the rattler happens to strike the person, his fangs cannot go through the two thicknesses of the boot.

For most species, however, of poisonous snakes in this country, a pair of leather puttees, besides the shoes, will give one almost perfect protection against snake bites.

(b) **Collective protection.**—Collective protection is secured chiefly through the extermination of venomous snakes. This may be done by several methods grouped in the following way: 1. By systematically killing venomous snakes; 2. by capturing the snakes alive; 3. by raising animals that feed on snakes. Let us consider these methods briefly.

1. For many years past a few countries have tried to get rid of snakes by systematically killing them. In India, the British officers have sought to diminish snake poisoning by encouraging the killing of snakes and paying a fixed bounty for each head brought in. Despite all efforts in this direction, the British authorities have not been very successful in their campaign, as, after the work of several years, the death rate from snake bites in India seems not to have been reduced. As a matter of fact, complete extermination of snakes is impossible, unless all traces of jungle, forests, rocks, marshes and other haunts are removed. Moreover, the destruction of poisonous snakes can never be achieved in agricultural countries, primarily, because such snakes feed chiefly on rodents, the number of which increases with the development of agriculture, and, secondarily, because both snakes and rodents follow the very well-known biological law applicable to all animals, that is, the more they feed the more young they bear.

2. Capturing live snakes seems to be a much more successful method of combating snake bites, because by taking away poisonous snakes from their habitat, we automatically remove one danger; and also by keeping the snakes alive, we can secure a supply of venom that may be used in the preparation of Antivenins or anti-snake-bite serums. This has been done in Brazil for over twenty years, and on a small scale in this country since the summer of 1926, with very encouraging results.

One can capture live poisonous snakes by using a wire hook, a leather lasso or even a forked stick made, for instance, of a branch of a tree. The wire hook, which is adapted to the end of a long pole, must be thick enough not to bend while pressing the head of the snake against the ground. By pressing the snake head tightly, we can grasp it

by the neck and put it into a sack, bag or box in which to transport it.

The leather lasso consists of a leather loop that slides freely through a metal keeper which is adapted to a long pole, the opening of the loop being guided by a long piece of wire operated by the capturer of the snake. The way venomous snakes coil, upon being disturbed, helps their capture, as, after coiling, they put up their heads towards the person approaching them. At that moment the operator can easily make the snake head come into the loop, and, as soon as this is achieved, he can tighten the loop around the neck and then lift and place the snake in a box or bag or some other receptacle, in which to send it to a place where it can be made use of.

The Antivenin Institute is glad to receive any venomous snakes that may be sent to it to be used in the preparation of Antivenin. At the Central Laboratory, as well as at the various Stations of this Institute, the venom is extracted from all snakes received and purified in such a way as to be used in the immunization of animals from which we secure the curative serum.

3. Raising animals that feed on snakes is a method that never succeeds in practice. A few of the Lesser Antilles have imported the Mongoose with a view of exterminating the local snakes. This animal, although clever enough to escape being bitten, is perhaps more fond of poultry than of snakes, so that it has of late become a nuisance to the countries that have imported it.

The raising of snakes that kill other snakes (ophiophagous species) is a still less satisfactory method on account of the difficulties involved. Such species as the Black snake (*Coluber constrictor*) and the King snake (*Lampropeltis getulus*) that are known to be fond of other snakes, are of no avail in practice on account of the fact that they usually find something else to feed on. In this respect, it can be said that whenever people have tried to break the rules or change conditions of Nature, the results have not always been encouraging.

2. Specific treatment of snake poisoning

In regard to the administration of Antivenin, in case of snake bite inflicted by North American snakes, the Antivenin Institute of America recommends the following treatment.

If you do not have the Antivenin with you, everything depends upon carrying out the following procedure (1 and 2) promptly.

(1) Apply a ligature or tourniquet above the bite. This should be applied tightly at first, but must be partially released for a

few seconds at five to ten minute intervals so as to maintain the necessary circulation in the limb. There is no particular advantage in making an incision nor in applying permanganate of potassium solution or crystals, or any of the other chemical agents commonly recommended for this purpose.

In fact, it is advisable to avoid any further mutilation or injury of the affected tissues, especially because, should the wound not be kept properly dressed until complete recovery, tetanus or other secondary infection might set in and complicate the patient's condition. In regard to potassium permanganate, it has been shown that, in order to have any effect on the venom, this substance must be used in concentrations that are injurious to the tissues. It has no effect in weak solution and is in itself toxic if used in strong solutions.

Above all, avoid the use of alcohol or any stimulant of that kind. These by strengthening the circulation, may tend to help the distribution of venom throughout the body. Strychnine or caffeine however, may be used if symptoms of weakness and giddiness develop.

(2) Proceed at once to the nearest place where the Anti-Snake-Bite Serum and medical attention can be obtained.

Remember that the North American snake venoms are usually slow in acting and that, if the Antivenin can be obtained within 12 to 24 hours after the bite, the chances of its being effective are good. Of course, the earlier it is used, the more completely effective it is, and the quicker the recovery from the ill effects. Meanwhile, the ligature or tourniquet should be kept in place, but care should be taken to release pressure at intervals. Otherwise, congestion in the limb due to prolonged binding may favor initiation of gangrene. Release the tourniquet as soon as the serum is injected.

If Anti-Snake-Bite Serum is available at the time of the accident, do not apply tourniquet or bandage, but proceed immediately as follows:

The serum for the Nearctic Crotalidae (rattlesnakes, copperhead and moccasin) is a concentrated Antivenin. It is now supplied in North America in 10 c.c. syringes, with a needle and accessories, (all sterilized and ready for instant use.

The Antivenin can be self-administered if necessary, in the same manner as a diabetes patient treats himself with Insulin. Injections may be made under the skin of the thigh, or, preferably, on the side of the abdomen, if applied by the victim himself. They should be given under the skin of the

back, between the shoulders, if applied by some one else.

If the serum can be given at once or within the first hour or two after the bite, a portion of the syringe contents (2 to 3 c.c., for instance) should be given by subcutaneous injection locally around the bite. This tends to prevent local destruction of the tissues. In late treated cases the local application is probably of little avail.

If medical aid is available, intramuscular injections are preferable, in order to hasten the absorption of the serum, and in cases seen late and those in which the symptoms are severe, intravenous injection is advised.

Dosage—As each syringe contains 10 c.c. of the Antivenin, inject the entire contents in one dose. The relation of the age of the person bitten to the dosage, is just the reverse of the usual rule for dosage. The amount of venom injected is the same whether a child or an adult is bitten. **The smaller the individual the greater the need of the Antivenin.** The syringe contains enough Antivenin to protect against the average amount of venom secreted at one time by North American serpents. Where there is reason to believe that the poison injected by the serpent was of unusually large quantity, or when the symptoms develop quickly and in severe form, as, for instance, in children, it is advisable to give a second, third, or even a fourth dose if indicated; that is, if the first has not caused the symptoms of poisoning to subside. In all cases the patient should be watched for three to five hours after every injection, and if his condition has not improved within that time, a second injection should then be made.

Final remarks.—The snake-bite problem is distinctly a rural one and is assuming more and more importance in the United States, with the development and extension of agriculture and with the increase of touring, camping and other phases of outdoor life. Not only agriculturists, tourists, campers, hunters and fishermen, but also those engaged in railroad and other construction work, and in quarries, are definitely exposed.

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SUMMARY

By COL. M. L. CRIMMINS
 Fort Sam Houston, Tex.

(In addition to the foregoing article from the Bulletin of the Antivenin Institute, the following summary has been furnished, from memory, by Col. M. L. Crimmins, of Fort Sam Houston, the Texas representative of the Antivenin Institute, who was present when Dr. do Amaral gave the talk before the El Paso County Medical Society.)

Dr. do Amaral laid particular stress on the fact that snake bites were becoming more common as poisonous snakes increased with agricultural development, as their food supply increased and their natural enemies decreased. Hawks, road runners or chaparral cocks, and javelins keep the poisonous snakes thinned out, as do Indigo snakes. I also know that badgers will kill and eat snakes; skunks in South America will do the same, and many do here. The rattlesnake is our slowest snake and is, therefore easiest to catch. The Indigo snake is immune to the venom; their thick plates are not penetrated by the rattlesnake's fangs. In one instance observed, it took an Indigo snake six minutes to swallow a small rattlesnake, but it made no attempt to resent the bites of two large rattlesnakes.

With cleared fields, the rattlesnakes are more concentrated. They die quickly in the hot sun, so they always seek cover. I have lost many snakes through their being left in tin collecting cans for twenty minutes in the hot sun, and lost five when they were displayed in a drug store window, and when the sun shone on the window from about six-thirty to seven-thirty a. m. With cultivation, rodents increase and with increased food supply they multiply more rapidly. Seventeen rattlesnakes were killed in filling in an old latrine at Camp Travis a few years ago and eleven more in chopping down an old hollow apple tree at Fort Sam Houston. In 1926 I know of nine being killed within the city limits of San Antonio.

The clothing absorbs about eighty per cent of the venom of the bite, and when serum was scarce we did not ordinarily use it for those bitten through the clothing. It is absorbed very rapidly when the bite is in a vascular part of the body. A dog will die in thirteen minutes when the minimum lethal dose is injected in the tail, even when the tail is cut off close to the body within eight minutes after the injection of the venom.

It should be remembered that children

should be given larger doses of serum than adults. The serum now made at the Mulford Biological Laboratory, Glenolden, Pa., is about three times as powerful as that made before and ten c.c. of serum should neutralize about 50 mgm. of venom. The average amount of venom in a single bite is about 220 mgm. The action of the venom is to prevent the blood coagulating and therefore the free bleeding washes out a part of the venom. If the dose is 220 mgm. and the system eliminates 50 mgm. and the syringe of antivenin neutralizes 80 mgm., the patient would have to eliminate 90 mgm. in order to recover. This may occur through the blood washing out the venom; the absorption may be retarded by a tourniquet, or the hemolytic substances caused by the action of the venom on the tissues may be removed by mechanical suction. Dr. do Amaral, however, believes in the exclusive use of the antivenin. But as antivenin is not always available, and as it costs about ten dollars a syringe, it is not always practical to use it. So, other methods should be studied and used to increase the elimination of the venom. We have personally used mechanical suction as a first aid treatment and in many cases we have succeeded in extracting enough of the venom in its various forms to make the use of antivenin unnecessary. We have furnished serum in about eighty cases free of cost to the patient, as they were usually poor people who were working in the fields bare-footed.

After the venom is in the blood, antivenin is the only substance that can neutralize it. We carried on 117 experiments with live dogs, and all the various drugs were ineffective. A fuller report of these experiments may be found in the July, 1927, issue of the Journal of the Texas State Medical Association, published at Fort Worth, Texas. My lecture read before the State Medical Association is in the same number of the journal.

Dr. do Amaral used the antivenin locally when he was bitten on the finger; by injecting it around the bite he made a neutralizing wall which stopped the further absorption of the venom and he was able to drive his car home as usual. It should be remembered, however, that the flesh will not absorb the serum around old bites where the swelling is extensive, so that intravenous injections are indicated in severe cases showing neurotoxic symptoms.

MIDDLE-EAR DISEASE IN INFANCY AND CHILDHOOD

DUDLEY FURNIER, M. D.
Phoenix, Arizona

(Before the Staff Meeting of St. Joseph's Hospital, Phoenix, on March 12, 1928.)

By far the most dangerous period for the ear during one's lifetime is that period of infancy and childhood. It is during this time that middle-ear infections are so common and it is extremely important that the pediatrician have some knowledge of normal and abnormal ears. Any physician who has the care of children in his practice, should routinely examine the ears. The most frequent form of ear trouble in infancy and childhood is middle-ear disease and the diagnosis is based on changes found on inspection of the drum membrane.

The most important exciting cause is the common cold in the head, and most middle-ear diseases can be traced to this cause. Pain at the onset is a conspicuous symptom, although in numerous cases in young children there seems to be a total absence of pain. Elevation of temperature is almost invariably present and there is some deafness. The appearance of the drum membrane is quite characteristic. It is congested, with an obscuring or obliteration of the normal landmarks, especially the light reflex and the handle of the hammer.

Case 12917 is one of this type. This child is fifteen months old. She was admitted to the hospital having frequent convulsions, with a temperature of 106. Examination showed she had a lobar and bronchial pneumonia. She was given 1 c.c. of catarrhalis immunogen every twelve hours. She progressed very favorably for a few days, when she again had a sudden rise in temperature. She was crying almost continuously, pulled at her ears and was very restless. On examination of the ear, the membrane was found to be inflamed and slightly bulging. She was taken to surgery and a paracentesis performed under gas anesthesia. She improved very nicely for a few days, when she again had a sudden rise in temperature. This time I got a specimen of urine and found it was loaded with pus. The ear drums were again incised and the pus in the urine cleared up considerably. After the child went home she had another convulsion with temperature rise. The urine examination showed hundreds of pus cells per high dry field. The ears on this examination showed inflamed and bulging drums. These were again incised under gas anesthesia, and discharged freely for several days. The urine has since cleared and the child has made an uneventful recovery.

The next case will illustrate the early opening of the ear.

Case E. N. H., male child eighteen months old. Father and mother both well. Child was breast fed to the eighth month. Three weeks previous to the time I saw him he developed pain in the right ear. The next trouble was a bloody diarrhea. Stools were accompanied with much tenesmus and were as frequent as ten or twelve times a day. The physician in attendance, not suspecting middle ear disease, treated the diarrhea with no results. When I saw the patient, he was very much emaciated,

the skin was dry and temperature 101. On examination, I found the ears to be inflamed and bulging. I advised an immediate paracentesis. This was done and a thick creamy pus exuded for several days. The pus, upon microscopic examination, was principally pneumococci and streptococci. The stools became normal two days after the drums had been incised.

As a rule, acute serous middle-ear infection lasts from a few days to ten days at the most. Usually, it clears up in a week's time. In some cases, permanent changes take place, as diminution of luster and thickening of the membrane. The treatment in the acute serous conditions is usually conservative at the beginning. Five per cent carbolic glycerine will quiet the pain and the application is usually very beneficial and hot moist dressings may be even more effective. In doubtful cases, it is always better to perform paracentesis, and the after treatment should consist only of frequent changing of cotton pledgets placed into the external meatus. The ear should not be irrigated but the application of heat will facilitate drainage.

Acute middle-ear suppuration is very common in childhood and is usually an extension of an acute infection in the nasopharynx. The child has a severe earache with elevation of temperature often to 104 to 105. In older children marked defect in hearing is demonstrable. The process usually advances to rupture of the membrane. The disease may run a course of from two to three weeks, and the initial course, before rupture of the membrane, may be from a couple of hours to several weeks. As a rule, spontaneous rupture takes place in from two to three days. The treatment consists in early paracentesis and I believe the earlier it is done, the better. As soon as I see a bulging membrane, I do not fool around with carbolic acid and glycerine but advise an immediate opening. And by doing this I believe I prevent more serious complications.

In very young infants—that is, those before the third and fourth month—the only symptom present may be fever. And for this reason I want to emphasize again the routine examination of these youngsters' ears. The symptoms disappear quickly after drainage through the drum membrane has been established. Great care should be taken in keeping the meatus cleansed, as an eczema is likely to develop owing to the sensitiveness of the baby's skin.

PRENATAL CARE AND ITS RELATIONSHIP TO THE REDUCTION OF FETAL AND MATERNAL MORTALITY

D. FOURNIER, M. D.
Phoenix, Arizona

(Read before the Maricopa County Medical Society March 19, at Phoenix.)

Motherhood has so long been taken for granted and for so many years has received such inadequate attention because of its supposedly natural and normal course, that the public has not been made aware of the really serious conditions that are very commonly seen during pregnancy and labor.

It has been only in very recent years that the great value of prenatal care and its influence in reducing fetal and maternal mortality have been told the laity and practiced by the physician.

This country, in spite of the fact that the people on the whole are well educated and healthy, has a shockingly high maternal and infant mortality. A few of the factors which explain this state of affairs are ignorance amongst a certain proportion of the people, indifference, poverty, unsupervised medicines and imperfectly prepared physicians.

During the past half century, the death rate in the country has been lowered very appreciably, but little progress has been made in reduction either in the number of deaths from parturition or in the amount of partial or complete invalidism resulting therefrom. The two outstanding causes of this high maternal death rate are first, sepsis; second, toxemia of pregnancy. Despite the many efforts that have been made to improve the technic of delivery, sepsis still remains the greatest danger that the parturient has to face. In figures compiled by the Metropolitan Life Insurance Company, they show that 42 per cent of maternal deaths are due to sepsis and 26 per cent to toxemia. In 1921, according to the United States census, the causes of maternal deaths were as follows:

Sepsis—40.3 per cent.

Albuminuria and eclampsia—26.8 per cent.

Accidents of pregnancy—8.4 per cent.

Puerperal hemorrhage—10.2 per cent.

Other accidents of labor—10 per cent.

One of the most puzzling features of sepsis connected with childbirth is that it frequently is seen in absolutely normal cases and in those where there has been no internal examination during or before labor. Recent intercourse is unquestionably responsible for many of these infections.

Prenatal care, unfortunately, cannot per se affect the sepsis rate, but it can educate the parents to demand better care at delivery. Prenatal care will fall far short of giv-

ing satisfactory results unless better care is given both mother and child during labor.

Organized prenatal care, so far, has not made any reduction in the number of abortions and premature infants, one of the reasons for this being that patients are not seen early enough in pregnancy and then are not seen often enough. The earlier prenatal care starts, the better will be the results. The statistics for New York state show that one-fourth of the deaths in children occurred before they were a day old and one-half before they were two weeks old. This makes it clear that the dangers to the newly born child are greatest immediately after birth.

Prenatal care has shown its most brilliant results, so far, in regard to maternal mortality up to the time of labor, in the toxemias, and chiefly the toxemias with convulsions. Just to illustrate, in seven years at the Bellevue Hospital in New York City, there were 16,600 admissions and of this number there were ninety-two cases of eclampsia and of these ninety-two cases only four developed among those who had received prenatal care. Likewise, if all cases of bleeding during pregnancy are taken seriously and prompt attention is given, most deaths from hemorrhage—whether from accidental hemorrhage or from placenta praevia—can be avoided.

If it is possible to get the people in the community educated to the value of prenatal care and better care at delivery, the needless sacrifice of life from sepsis can be at least partially wiped out, so that the present gross maternal mortality may well be cut in two. By the recognition of syphilis and treatment thereof, a very great improvement can be made in those suffering from lues. The earlier the prenatal care and the more carefully it is administered, the fewer will be the number of cases of abortion and premature labor.

Prenatal care affects both mother and child. It is chiefly preventative in nature and its success depends upon the zeal and skill of the physician in charge. For prenatal care to be completely successful, it is desirable that the patient have a thorough examination early in pregnancy and that she return at stated intervals. The physician should detect any condition liable to be aggravated by pregnancy. He should detect any pelvic abnormality and existing gonorrhea or syphilis. He should try to prevent abortion and premature labor and recognize early any toxemia and treat it correctly, and he should deliver the woman safely at or near term.

It should be the effort of the physician to

have the expectant mother apply for examination and advice as early as possible in pregnancy. This is not said in a spirit of over cautiousness, but in the definite belief that the early and constant supervision of every expectant mother is the only way you can get her through to term with any degree of safety. Many women go through their pregnancy without any care whatsoever but, because ninety-nine escape, there is no reason why the woman should be neglected. The physician who really cares for his patient should take obstetrics more seriously and, if he has not the time and patience to do this, he should refer her to someone who is willing to devote the time to her. Every woman should see her physician once in three weeks for the first five or six months and then to term, every two weeks, or more often if the condition warrants it. The usual routine which I follow is: Upon first seeing the patient, a complete physical examination is made. This includes the head, neck, heart, lungs, breasts and lower extremities. Then the pelvic measurements are taken, together with a pelvic examination. If there is anything suspicious, I take a vaginal smear or have a Wassermann done. On each subsequent visit, the blood pressure is taken and the urine examined and, in the last six weeks, another careful internal examination is made in order to verify the relationship of the fetus to the pelvis. Another examination of the pelvic organs is made a month or six weeks after delivery.

ANESTHESIA IN OBSTETRICS

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Phoenix, Arizona

(Read before the Maricopa County Medical Society, at its meeting of March 19, at Phoenix.)

From earliest times, there are many records of drugs and other means used to alleviate the sufferings of childbirth. Sir James Young Simpson was the first to really accomplish this, when, in 1846, he began to use ether in obstetrics and, shortly afterwards, introduced chloroform. He met with much opposition from the clergy, his opponents, claiming that its use was against the laws of nature; yet, it gradually grew in favor until now there are very few obstetricians who do not use some form of anesthesia or analgesia.

Chloroform has been used more in the past, but lately ether is more widely used because of its greater margin of safety. Neither chloroform nor ether is suitable for the first stage of labor, but they are often used in the last part of the second stage.

Ether is unpleasant to take, irritates the bronchial mucous membranes, is not very

rapid in action and is often followed by nausea and vomiting. Chloroform lowers the blood pressure, is not unpleasant to take, acts quicker than ether, and causes less nausea and vomiting. It is more dangerous than ether, must be watched very closely and is said to have a degenerating effect upon the liver.

Potter of Buffalo, in his clinics, uses chloroform exclusively in all his obstetrical cases except the cesarean sections: in these, he uses ether. He claims a more perfect relaxation with chloroform but insists that it be given by a trained anesthetist.

DeLee is unalterably opposed to chloroform and uses ethylene and ether. Local anesthesia is used almost entirely in cesarean sections. Ethylene is used when there is lack of cooperation.

Webster and Lunch, in 1913, popularized the use of nitrous oxide in obstetrics. It is probably the safest anesthetic for both the mother and child and can be given intermittently over a period of several hours. It is pleasant, acts quickly, does not lengthen labor. Its main disadvantage is that it requires quite a bulky apparatus and a trained anesthetist; also, there may not be sufficient relaxation in some cases.

Ethylene has replaced nitrous oxide in many hospitals. It is slightly more unpleasant to take than nitrous oxide. It acts quicker, gives more relaxation. It is quite explosive and must be given by a trained anesthetist.

Morphine and scopolamin, or "twilight sleep" anesthesia, was extensively used by Gauss of the Freiburg clinic. In 1913, he reported a series of 3,000 cases with excellent results and a very low infant mortality. The wide publicity these reports received in the McClure's and other magazines, decreased rather than increased the popularity of this method. There is no doubt much merit in the combination of morphine and scopolamin and a number of successful reports have been published by some of our large obstetrical clinics.

The following technic is used in Bill's clinic in Cleveland: The primipara is the patient of choice. When the first stage of labor is definitely started, that is, when the contractions are occurring regularly from seven to eight minute intervals, the patient is shaved and given an enema. She is given a subcutaneous injection of $\frac{1}{4}$ gr. morphine and $\frac{1}{150}$ gr. scopolamin hydrobromide. All relatives are barred from the patient's room, which is darkened, and a nurse is directed to see that external stimulation be avoided. Forty-five minutes later, $\frac{1}{400}$ gr. of scopolamin is injected. The morphine is never repeated after the first dose. After forty-

five minutes, $\frac{1}{400}$ gr. of scopolamin is given again and $\frac{1}{400}$ gr. may be given at $1\frac{1}{2}$ hour intervals, if needed. A small amount of ether is given at the end of the second stage.

Schwartz and Krebs, of St. Louis, attempt to keep the patient in that narrow zone of semi-narcosis by giving sufficient scopolamin to cause her to lose locomotor coordination, which is shown by her inability definitely to touch her nose with her extended finger, but not enough to prevent the pupils from showing their usual dilation at the height of contraction. The keeping of the patient in this zone constitutes scientific semi-narcosis. They also give small amounts of ether, chloroform, or nitrous oxide gas, to complete the anesthesia for the delivery of the head. Schwartz and Krebs state that this form of anesthesia is contra-indicated in uterine inertia, and must be used with great care, if at all, in cases of eclampsia, placenta praevia, and heart diseases complicating pregnancy; also, that this method is not adapted to use by the general practitioner, nor to the ordinary home. If used by trained obstetricians in a well equipped maternity hospital, satisfactory results will be obtained in about eighty to ninety per cent of the cases. Intense excitement, and sometimes delirium, is produced in some cases, and may be very disconcerting to the physician in charge. Lately, they have been using magnesium sulphate in conjunction with the scopolamine, with very promising results.

Dr. J. T. Gwathmey of New York, commenced, 1923, to experiment in the synergistic action of analgesics and anesthetics. He used morphine and magnesium sulphate hypodermically and, later, an oil retention enema containing quinine and ether. This method is probably used more than any other except ether and chloroform.

Gwathmey's technic is as follows: The patient is given the usual preparations for labor except that, instead of the cleansing enema, a colonic flushing is given until the water returns clear. When the labor pains are regular at four or five minute intervals, an intra-muscular injection of $\frac{1}{6}$ gr. morphine and 2 c.c. of a 50 per cent magnesium sulphate is given. If there is not a decided sedative effect within twenty minutes, a retention enema consisting of quinine hydrobromide 20 gr., alcohol 3 drams, ether $2\frac{1}{2}$ oz. and sufficient olive oil to make four ounces, is used. This is given slowly through a large rubber catheter. It may be given by gravity, or a large bulb or piston syringe may be used. This is given with the patient lying on her left side in Sims' position. A folded towel is pressed firmly against the

perineum for ten to fifteen minutes, to prevent expulsion of the enema, and the patient is given instructions not to bear down. There should be a decided relief from pain in from fifteen to twenty minutes. If the pains increase, another 2 c.c. of the 50 per cent magnesium sulphate is given, but the morphine is never repeated after the first injection. As many as four hypodermic injections of magnesium sulphate may be given, but at intervals not closer than 30 minutes. If the labor is prolonged, the retention enema may be repeated in four hours. The patient must be closely watched, for labor may progress much faster than is expected. Usually, it is necessary to give some additional anesthetic for the last few pains.

Gwathmey states that: first, the method is safe; second, the pain is relieved in some measure in over 90 per cent of the cases; third, labor is not delayed; fourth, occipito-posterior positions rotate in about the same proportion as those without medication; fifth, the baby is usually born crying; sixth, delivery by forceps is decreased; seventh, post partum contraction of the uterus is good.

Morphine should not be given in any case if delivery is expected within three or four hours.

Somniferin has been used quite extensively in France in the last few years, with very good results. The only disadvantage reported was an extreme agitation with each pain, that necessitated holding the patient in bed and rendered examinations difficult. From 6 to 9 c.c. of somniferin are given intravenously, which usually produces sleep within fifteen to twenty minutes, and there is usually complete amnesia following delivery. Labor is not delayed and it is not deleterious to the child.

Sacral and spinal anesthesia have their field of usefulness, but have not been used extensively because of the danger of cardiac and respiratory paralysis, and the technic requires more than ordinary skill.

Every pregnant woman has a right to demand that some method be used to help relieve the pains of childbirth. Until some safe and satisfactory anesthetic is found that can be universally used, a careful study should be made of each case to determine the type of anesthesia that will be safe for both mother and child.

BOVINE TUBERCULOSIS

WM. BRANCH, M. D.
El Paso, Texas

(Read before the El Paso County Medical Society, Monday, February 13, 1928.)

Probably no disease, affecting either the human race or livestock, is better known or

has been the subject of so much study as tuberculosis. Present knowledge of the disease has been derived from many sources. The President of the United States, in his message to Congress, called attention to the importance of eradicating bovine tuberculosis. He said: "The eradication of bovine tuberculosis is a measure of great economic importance. Work is being done in one-fourth of the counties of the United States to secure this result. More than 12,000,000 cattle have been under treatment; the average degree of infection has fallen from 4.9 per cent to 2.8 per cent." In his budget the sum of \$5,853,000 is included for the eradication of bovine tuberculosis, this being an increase of \$1,200,000 over the previous year.

EMBARGO AGAINST INFECTED MILK

The continued increase in the number of cities which have placed embargoes against milk from dairy herds which have not passed tuberculin tests, is placing a heavy burden on the owners of dairy herds, since slaughter of infected animals is the accepted method of eradication.

AN ARTICLE OF FOOD

Kiernan² said that meat is considered an almost negligible factor in the transmission of bovine tuberculosis to human beings, the principal means being the raw milk of the tuberculous cow. In every land, in every generation, and from a very early period, the human race has endeavored to make safe for human consumption meat and other food products. In ancient times the Egyptians in their food laws designated certain animals—the hog, for instance, as unclean and forbade man to eat of them. This prohibition was accepted by Semitic races, and was incorporated in the Mosaic laws of the Israelites; but the Greeks and the Romans had no prejudice against pork in their control over the meat supply. The Mohammedan food regulations of today are similar to the Egyptian food laws of ancient times.

PERIOD OF INCUBATION

Kiernan found that animals recently infected will react to tuberculin before any pathological change has taken place in the tissues. The period between the introduction of the organisms and the sensitization to the tuberculin may be only a week. The time required for the development of lesions varies greatly in different animals. A tuberculous cow placed between two tuberculosis-free cows, will usually infect both her neighbors. At post mortem one of the animals will often show a slight infection, while the other may show a generalized case of tuberculosis.

CONGENITAL TUBERCULOSIS

From one abattoir alone post mortem re-

ports were received indicating generalized tuberculosis in thirty-six calves, the ages being given as follows:

- 1 calf less than twenty-four hours old.
- 1 calf one day old.
- 1 calf 10 days old.
- 12 calves one week old.
- 14 calves three weeks old.
- 5 calves three weeks old.
- 2 calves four weeks old.

In the last four or five years many cities and towns have adopted ordinances requiring that all milk sold in their jurisdictions must come from tuberculin tested cows only. Such cities as Chicago, Cleveland, Detroit, Louisville, Boston, and scores of others require the tuberculin test. There are 874 cities in the United States that require tuberculin test of all cows from which milk is used; 375 cities provide an option between tuberculin test and Pasteurization.

IMMUNITY

The statement has been made that the ingestion of the bovine tubercle bacillus confers immunity against an infection by human tubercle bacilli, and that an infection by the former might be used in combating an infection by the latter. Dr. Schroeder³ of the Bureau of Animal Industry, in discussing the matter, took the position that this should be definitely proven, and that only after it has been positively proven, and not before, may we consider the propriety of permitting children to ingest bovine tubercle bacilli, and then not indiscriminately, but in carefully measured, numbered and timed doses of a carefully determined degree of virulence. Science demands precision, exactness and care, especially when children are to be treated with possibly beneficial agencies which, when used carelessly or inaccurately, are known to cause disease and death.

Raw⁴ secured from Professor Calmette a virulent bovine culture from the mesenteric glands of a cow. These cultures were subcultured on glycerin-potato and transplanted to glycerin-agar every month for twenty years. The present growth, at the writing of his article, February 26, 1927, was the 241st generation. Every year since 1906 he injected these bacilli into animals with a view of testing their pathogenicity; up to 1913, at the 84th generation, he noticed no change in their virulence, but after that time attenuation became marked, and in a series of these inoculations into animals in 1914 they were observed to be avirulent. These experiments prove that virulent tubercle bacilli can be attenuated to such a degree as to be a virulent. Hundreds of animals were inoculated to test the power of immunization of healthy animals, and with

excellent results. Calves that are to be immunized should be separated from the mother at birth and fed on healthy milk for a week, when the first dose of vaccine is given; one week later the second dose is given, after which they are allowed to associate with the herd. During the last four years over six hundred calves in valuable pedigreed herds have been vaccinated by veterinary surgeons. Tuberculin tests at intervals of six months have so far been satisfactory; the duration of immunity in one hundred and twenty calves has been over three and one-half years. The problem of tuberculosis resolves itself into the question of immunity. The question of immunizing children is much more difficult, for the reason that children are susceptible to both human and bovine infections. Raw vaccinated more than one hundred children (each child's father had pulmonary tuberculosis); he gave each child two doses of protective vaccine, prepared from dead attenuated bovine bacilli in an attempt to protect them from human infections; so far they are healthy.

THE FREQUENCY OF BOVINE TUBERCULOSIS

Rosneau⁵ indicated that pulmonary tuberculosis in man is practically never associated with the bovine bacilli. Bovine tuberculosis in man is usually a disease of the lymph glands or bones, the lymph nodes of the cervical region and the lymph nodes in the abdomen being especially attacked. Griffith analyzed 1,068 cases studied by the British Commission on Tuberculosis. Of this number 803 showed human bacillus infection, 194 bovine infection, and five mixed infection. Of various organs involved, the examination showed that bovine infection occurred in the following percentages: bones and joints, 19.7; genito-urinary organs, 17.65; cervical glands, 46.3; meninges, 20; scrofuloderma, 34.65; lupus, 48.9. As to the age period bovine infection occurred as follows: during the first five years of life, 37.55 per cent; from five to ten years, 29.45 per cent; from ten to sixteen years, 14.66 per cent; after sixteen years, 6.25 per cent. Stone⁶ said that with the pasteurization of milk and the gradual elimination of tuberculous cows, more and more surgical tuberculosis is proving to be of the human type. The incidence of surgical tuberculosis is being cut down tremendously, but the cutting down has been chiefly in that originating from milk. The surgical tuberculosis of the human type has been cut down much less rapidly. Woodward voices the prevailing opinion when he maintains that the more deeply we go into the subject, the bovine side of the question comes to take a larger and larger place, especially in

connection with surgical and abdominal tuberculosis, not only in the child, but even in the adult.

THE TUBERCULOUS COW

It is estimated that in England about a million dairy cows are affected with tuberculosis. The cows with the udder are of course the most dangerous. The compulsory seizure, isolation and slaughter of these cows is a slow, laborious and very costly procedure. Kiernan stated that more than 34,000,000 had been tested or retested with tuberculin from 1917 to January 31, 1927, and 1,176,626 cattle reacted to the test; practically all of them were killed and autopsied and definite microscopic lesions of tuberculosis were demonstrated in 91.7 per cent, while 26 per cent of the remainder showed definite tuberculosis in the laboratory. With such a demonstration of accuracy of the tuberculin test, are we not justified in classifying every animal that reacts to tuberculin an infected beast? Because of the interstate shipments of milk and dairy products, it is quite proper for the Federal government to cooperate with the state or municipality, to the end that this great food supply be protected. All of which brings home again and again to the dairyman the necessity of immunization of the young calves for the prevention of tuberculosis, if he would stay in the business.

THE MILK OF THE TUBERCULOUS COW

All milk, where there is any question as to its purity, should be pasteurized. Pasteurization of milk at 140 degrees for 40 minutes will kill the tubercle bacilli. Pasteurization is not intended to make a palatable article of food out of something that is otherwise wholly unfit for human consumption.

DIAGNOSIS

Pottenger⁷ avers that bovine tuberculosis cannot be differentiated from human tuberculosis, microscopically. Neither can it be differentiated by character or localization of lesions. Any bone, joint, or gland lesion, in a small child, should arouse the suspicion of the physician.

TREATMENT

Every child that is suffering from a bone, joint, or glandular lesion, or who is under weight, size, or strength; every child that lives in a home where there is an open case of tuberculosis; and all anemic children among the very poor, should be taken to a preventorium, provided that no child be taken away from parents who are morally willing, or financially able to properly care for the physical development of the child. Geer⁸ said that of the 223 children that had left the institution of which

he had charge, since 1915, all but seven had been accounted for. Of the 216 whose whereabouts were known, only two had developed tuberculosis, one of whom had died. Stiffler, who worked with Geer in the Ramsey County Preventorium, found twenty-eight who could qualify for admission to a school for the feeble minded, out of seventy-five children recently admitted. He further stated that the children who failed to gain physically, as a rule, stood lowest mentally. Ritchie⁹ advises that the Prendergast Preventorium of Hampton County, Mass., has contributed to the state hundreds and hundreds of able-bodied men and women, who as children were taken from the slums and tenement districts. The record of the institution can be had for the asking.

CONCLUSIONS

(1) That bovine tuberculosis is a preventable disease, and as such, should be prevented.

(2) Every infected child that cannot or will not get a satisfactory physical consideration at home, should be sent to a preventorium.

(3) Every dairy calf should either be slaughtered or immunized.

(4) Every cow should be tested, regardless of whether she gives milk or not, or whether her milk is sold or not.

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MALARIA IN EL PASO

P. R. OUTLAW, M.D., City Health Officer,
El Paso, Texas.

From a public health standpoint, the etiology of malaria is of great importance. It is important to know something of the nature and habits of the mosquito, as the malarial parasites live only in the body of man and certain species of mosquito. The climatic conditions of El Paso are unfavorable to malaria, as contrasted to the low, swampy, rainy country which is more favorable to the production of mosquitoes.

Since the construction of Elephant Butte dam, more and more of this valley land has been brought into cultivation and irrigation, the breeding of mosquitoes has greatly increased, and this, coupled to the fact that this soil was found to be an ideal place to produce cotton, has made it a very attractive place to people living in the cotton growing section of the south where malaria abounds. The migration of these people, many of whom are carriers of malarial parasites, has served to furnish infected blood for the mosquitoes and through them to spread the disease to others.

A routine examination of thirty thousand people in Mississippi showed seventeen per cent of the white and twenty-two per cent of the negro population to be infected with malaria, or a total of thirty-nine per cent of the population infected.

The season most favorable to the development of the anopheles mosquito is also most favorable for the transmission of malaria, that is, August, September and October. There are three types of malarial organisms and these parasites are reproduced in man in very much the same way. Malaria is carried from one individual to another entirely by the bite of the female mosquito, as the male does not bite. Not all species of mosquitoes are capable of serving as hosts for malarial parasites. Malaria is not inherited, the malarial parasites will not pass from the mother to the fetus, although it has often been found that the maternal side of the placenta is loaded with malarial parasites.

All of the malarial transmitters, so far identified, belong to the Anopheline species, which are about forty in number. Three of the Anopheline mosquitoes have been found in and around El Paso. The Anopheline *pseudopunctipennis*, is found in great numbers in all parts of the city. Different species of Anopheles have different breeding habits, but most of them require rather clean water protected by vegetation. Natural accumulations of water often contain more Anopheline larva than do artificial containers. The eggs hatch in from two to four days, the larval stage covering twelve to fifteen days, but both of these may be shortened in very hot and favorable conditions. The pupal stage runs from two to four days and from the pupa a full grown mosquito emerges. When the stage of life is reached at which the female mosquito should produce eggs, she goes on the hunt for animal protein. The mosquito will not develop eggs when living on their natural food of plants and juices. After a blood meal is found, ova develop very rapidly.

The Anopheles do not travel very far, but will go back and forth from their breeding places to their feeding places. This has been repeatedly proven by spraying mosquitoes with some form of aniline dye and afterward recapturing them. The time required for the development in the mosquito of the malaria sporozoite is from fifteen to twenty days, and mosquitoes are not infectious until this sexual development from the gamete to sporozoite is complete and the sporozoite has found its way to the salivary glands, from which it is injected into the human victim.

METHODS OF CONTROL OF MALARIA

The first is educational. I do not think we can go very far in eradicating any disease until we educate the public to the importance of it, and have their earnest cooperation. A large percentage of people look upon the health officer as one who is constantly trying to deprive them of personal liberties, but wants their neighbors put in jail. I think we should report our malarial cases to the health department for record and for location, so that the mosquito division can make a thorough investigation of the premises and see that there are no breeding places, or take care of them when they are found.

Quinine is a prophylactic, but this depends upon the cooperation of the people. Among people who will cooperate, quinine will stamp out malaria, but quinine should be properly given, as it has been found in malarial countries that small improper doses of quinine will actually increase the number of gametes in the blood. There are some people who are malaria carriers, though not sick themselves, as we have in other diseases like diphtheria, typhoid, etc.

ELIMINATION OF BREEDING PLACES

The water table of the Rio Grande at El Paso makes it impossible to properly drain the ponds of water caused by seepage and this inability to drain these ponds is a constant source of expense on account of having to be re-oiled and watched at all times.

Drainage is one of the most effectual ways of eradicating mosquitoes and one which takes first place in the effort of control.

The use of oil is successful in destroying the larvae but requires re-operation at stated times as the oil evaporates and through other causes loses its efficiency. Stocking the lakes, drainage ditches and pools with fish and minnows is one very effectual way of assisting in eradicating mosquitoes. Clearing land of brush and unnecessary vegetation is important, as

the Anopheles will go to the brush and weeds for protection.

When a doctor finds a case of malaria he should see that the house is well screened, and the patient should order a mosquito net following the first visit of the physician. As the Anopheles feed mostly at night it is at this time that we should take the greatest precaution against being bitten. The greatest and most effectual work done by the United States Public Health Service in different parts of the United States in mosquito control, costs, including oiling, draining, equipment, etc., about one dollar and eighty cents an acre.

CASE REPORT:—REMOVAL OF TACK FROM LEFT BRONCHUS BY MEANS OF BRONCHOSCOPE

DR. W. E. VANDEVERE, El Paso, Texas.

(Read before Staff of Hotel Dieu, Feb. 8, 1928.)

Frank G., Mexican boy, age eleven, was brought to my office February 1st, at 4 p. m. The history was that at two o'clock that afternoon he was running with a tack in his mouth and "swallowed" it. He was not



coughing nor dyspneic, there was nothing to indicate that the foreign body was in the lung, and it was my belief that he really had swallowed the tack, although that is what is always told the doctor, regardless of whether the tack has been swallowed or in-spirated. It seems difficult to realize that there are two tubes leading down the throat,

one for food and the other for air, and that it is possible for foreign bodies to enter the air passage also.

X-ray located a thumb tack in the left bronchus. (Fig. 1).

Under ether anesthesia the bronchoscope was passed into the trachea, and by lowering the patient's head and at the same time bending the neck and upper thorax to the right the 'scope was carried into the left bronchus and down it until the tack was



sighted. It was then grasped and brought out trailing the bronchoscope. (Fig. 2). The boy was allowed to return to his home the following day and has made an uneventful recovery.

Cases of foreign body in the right bronchus are fairly common and I have removed quite a number from that location. A foreign body of the left bronchus is not so frequent because of the sharp angle at which it leaves the trachea. On the other hand the right bronchus is more of a direct continuation of the trachea with only a slight outward deviation.

PITUITARY HORMONIES

From the research laboratory of Parke, Davis & Co. has recently come the announcement of important work on the isolation of the two distinct hormones of the posterior lobe of the pituitary gland. It has long been known that the internal secretion of this gland had two distinct actions, one upon the blood pressure and the other upon the unstriped muscle, particularly the uterine muscle. Since it is frequently desirable to secure one of these effects, without the other, the accomplishment of isolating these two principles in pure form has great importance in therapeutics. "As a result of this preliminary work the foundation is now laid for an investigation of the chemical nature of the separated hormones of the posterior lobe of the pituitary gland, together with a more exhaustive study of their pharmacological properties."

(Jour. American Chemical Society, 50: 573 (1928).

NORTHERN COUNCILOR DISTRICT MEETING ARIZONA STATE MEDICAL ASSOCIATION

The first District Councilor Meeting, as authorized by the House of Delegates of the Arizona State Medical Association, at the Yuma meeting, was arranged by Dr. Wm. C. Todt, councilor for that district, and held in Flagstaff on March 22nd, under the auspices of the Coconino County Medical Society. The honors for this progressive move go to the northern district, and it is hoped the other two districts will not be long in following this example. The following doctors were registered in attendance: A. C. Carlson, Jerome (president-elect of the Association); D. F. Harbridge, Phoenix, (secretary of the association); W. C. Todt, Kingman, (councilor); J. K. Hazel, Jerome; J. M. Walsh, Jerome; H. T. Southworth, S. O. Bassett and A. D. Loewy, Prescott and Whipple; W. C. Hendrick, Holbrook; Walter Brazie, Oatman; J. W. Bazell, Winslow; John T. Taylor, Camp Verde; C. Matschke, Clemenceau; C. D. Jeffries, Williams; H. J. Harnisch, M. G. Fronske, A. H. Schermann, E. S. Miller, G. F. Manning, of Flagstaff.

The program of the meeting was as follows, with Dr. A. C. Carlson, president-elect of the Association, presiding:

"Organization of the American Medical Association and Its Relation to the State Association and County Society"—Dr. D. F. Harbridge, Phoenix, Secretary of the Arizona State Medical Association.

"Infantile Paralysis"—Dr. M. G. Fronske, Flagstaff. Discussion by Drs. Schermann, Carlson, Bazell, Walsh, Jeffries and Taylor.

"Fractures of Long Bones"—Dr. A. C. Carlson, Jerome, President-Elect of the Arizona State Medical Association. Discussion by Drs. Southworth, Todt, Schermann, Fronske, Harbridge and Hendrick.

"The Milk and Water Supply of a Small Community," was introduced as a subject for general discussion, this being opened by Dr. G. F. Manning, Jr., Health Officer of Coconino County.

The doctors in attendance were entertained at luncheon by the Coconino County Medical Society, at the Monte Vista Hotel.

In the afternoon, the subject for general discussion was "The Medical Profession, the Industrial Commission and the Insurance Carrier." It was opened by Dr. W. C. Todt, and participated in by Drs. Carlson, Harbridge, Bazell, Fronske, Taylor and Schermann.

"The Spirit of Cooperation Among Physicians, and the Impropriety of Injuring the Confidence Between Physician and Patient

in Any Way" was discussed by Dr. D. F. Harbridge.

The closing feature of the meeting was the presentation of a Cabot Case History Discussion by Drs. Southworth, Bassett and Loewy, of the Yavapai County Medical Society-Fort Whipple clinical discussion group.

METHOD FOR COLLECTION OF BILLS

Should this be done by the physician himself? We have all tried it and have not succeeded very well so far. Otherwise, the subject would not require consideration.

By the collecting agencies? Opinions vary as to their efficiency. Some say that they do better than the physician himself; others that they do not. At best, they are costly. They want from 25 to 50 per cent commission. Should they collect a half, that would leave but 25 to 37 per cent for the doctor. But do they often do that? Personally, I have tried three of these agencies, one here in Phoenix, no one of which has collected a cent from the patient. I have paid them commission on money that I collected before they had time to reach debtors with their letters.

One method presents itself to me as possible. For that we must return to the physicians themselves, these working together. It is this: Let each one go over his accounts for some years back, and, after crossing out such as he may consider worthy of charity, list all the others, with last addresses and amounts due or not, as may seem best, and send the list to some central office or secretary. Here the names will be put together alphabetically, each with the names of all the doctors to whom they are indebted. The secretary will then send a copy of this list to each of the doctors entering into the system. Each of these should furnish the secretary with a monthly list of collections. She can then inform the doctors whenever an account has been paid. These lists can be renewed as frequently as the number of payments may require.

Notice of this plan might well be published in the local papers. This would lead to a goodly number of the accounts being paid so as to keep names off the list. The amount of work required of the secretary would diminish after a time and would not be costly.

Suppose one receives a call by day or night. He asks the name, looks over his list, and then says "You owe this, that, and the other doctor. What about the money for this call?" On receiving payment, he might suggest that they pay some on the other doctors' accounts before they call again.

Would this system be hard on the poor? Is it not easier for a family to lay up money for an emergency than to pay it afterward, when, perhaps, the wage earner may have died? Many of these cases are obstetrical, in which they have had eight months warning of what was to occur. Many of those who owe doctors are not poor. They can dress well, travel, buy a new house, a new automobile occasionally and enjoy life generally.

During eight years of practice in Mexico and the Philippines, where the people were much poorer than here, I collected 96 per cent of what I charged, and did much less charity work than here. The people scarcely ever asked for charity and some even refused it when offered.

The Official Bulletin of the Chicago Medical Society of June 2, 1923, mentions a plan already in service by which a doctor may be informed beforehand as to whether the proposed patient has paid his medical bills. The plan is favorably discussed in the Journal of Clinical Medicine of July.

CARLOS FATTEPERT, M. D. Phoenix, Arizona

Southwestern Medicine

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A COMMENDABLE EXAMPLE

The editor, in his capacity as member of the Program Committee, has been told by the Tucson members of the committee that it is their desire to hold their smoker without the customary alcoholic embellishments. Since this made it unanimous, so far as the Program Committee is concerned, we take it that Pima County will set the balance of the state a worthy example this year. We believe, therefore, that we can express our sentiments on this question without giving offense to any one.

It is a peculiar, and not very commendable, circumstance that when it was entirely lawful to serve alcoholic drinks, the Arizona State Medical Association refrained from doing so. Since it has become unlawful to transport, buy or sell alcoholic drinks, the Association has become a deliberate and wilful lawbreaker, a matter in which we can take no pride. It may be argued that this has been the tendency of many people in the United States; this may be true with respect to some unbalanced juveniles, a great horde of lawless foreigners who have no respect for this or any other country, and a few otherwise respectable Americans. However, that is no excuse for such an organization as the Arizona Medical Association, or any constituent county society which stands for law and order, conniving with lawbreakers to violate the federal and state laws. We can recall the last meeting held in Tucson (Medical & Surgical Association of the Southwest), and the smoker on the roof of the Santa Rita Hotel. Many present at that meeting are not able to recall the later events of the evening, having been so far gone in alcoholic obfuscation, as to be unable to recall, the following

morning, that Dr. Willard Smith gave his presidential address on that occasion. We recall the smoker of the meeting for last year, held over the line from Yuma. In the midst of it, when the Mexican children were looking in at the doors and windows in amazement at the behavior of a supposedly superior race, one of the sober and observant doctors present remarked: "Isn't this a hell of an exhibition for such an organization to be giving to this generation of children?" We were forced to agree with him that it was all of that. Again we congratulate Pima County on its decision to have no exhibition of which we would not be willing to have moving pictures taken, and shown at the public theater the next day, for the edification of the public whom we profess to serve and whose respect we claim to merit.

A NEW MEDICAL JOURNAL FOR LAITY

"Medical Progress," a Journal for Laymen, made its initial appearance in March. This is a quarterly journal under the auspices of the American Association for Medical Progress. This Association, whose purpose is "to diffuse among the lay public an understanding of research methods in medical science," should have the sympathetic support of all public spirited medical men. In the initial number of this magazine there is an article by Dr. Gladys Dick on "The Control of Scarlet Fever," together with much interesting material relative to medical legislation. One year's membership in the Association, together with the journal for one year can be secured for \$2.00, by addressing the Association at 370 Seventh Ave., New York.

NEW MEXICO MEDICAL SOCIETY

FORTY-SIXTH MEDICAL MEETING

ALBUQUERQUE, N. M.

MAY 10, 11, 12

1928

ANNOUNCEMENTS

Sessions of the New Mexico Medical Society will be held in the assembly room of the Alvarado Hotel.

No addresses or paper before the Association except those of the president, orators, or invited guests, shall occupy more than twenty minutes and no one shall speak more than once on the same subject. Papers, when read, become the property of the society and must be immediately handed to the secretary or reporter.

Hotel reservations or other information concerning the meeting or entertainment may be had by communicating with:

Dr. L. B. Cohenour, Secretary Bernalillo County Medical Society, Albuquerque, N. M.

Tickets for dance can be had at registration desk.

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CARL MULKEY, M. D. - Albuquerque, N. M.

GENERAL PROGRAM

THURSDAY, MAY 10, 1928

MORNING SESSION

8:00.—Meeting of Council.

8:30.—Meeting of House of Delegates.

9:30.—Call to order by

PRESIDENT C. B. ELLIOTT, M. D., Raton, N. M.

Invocation.—DEAN H. R. A. O'MALLEY, Albuquerque

Address of Welcome.—P. G. CORNISH, JR., M. D.,

President Bernalillo County Medical Society.

Response.—ROBT. E. MCBRIDE, M. D. Las Cruces.

Introduction of President-Elect.—M. P. MARTIN,

M. D., Toas, N. M.

President's Address.

SCIENTIFIC SESSION

1. F. H. CRAIL, M. D. - - - Las Vegas, N. M.
"Group Practice and the Small Hospital As
a Means of Meeting the Needs of Com-
munities in New Mexico."

2. C. W. THOMPSON, M. D. - - - Pueblo, Colo.
"The Contribution of Psychiatry to Medicine."

3. O. S. FOWLER, M. D. - - - Denver, Colo.
"Tongues and Edema."

12:00 Luncheon.

AFTERNOON SESSION 1:30 P. M.

4. G. V. BRINDLEY, M. D. - - - Temple, Texas

"Cancer of the Rectum."

5. JOHN V. BARROW, M. D., Los Angeles, Calif.

"The Diagnosis and Treatment of Human
Intestinal Protozoa."

6. WILBURN SMITH, M. D. - Los Angeles, Calif.

"Superior Mesenteric Thrombosis."

7. A. J. MARKLEY, M. D. - - - Denver, Colo.

(Subject to be announced.)

FRIDAY, MAY 11, 1928

MORNING SESSION, 8:00 A. M.

8:00—Meeting of Council.

8:30—Meeting of House of Delegates.

SCIENTIFIC SESSION

8. H. A. MILLER, M. D. - - - - Clovis, N. M.

"Simple Technic for the Estimation of
Blood Urea."

9. H. W. SNYDER, M. D. - - - - Denver, Colo.

"Diagnosis and Treatment of Marie-Strumpell
Osteoarthritis." (Illustrated).

10. SANFORD WITHERS, M. D. - - - - Denver, Colo.

"Principles of the Treatment of Cancer."
(Illustrated.)

12:00—Luncheon.

AFTERNOON SESSION 1:30 P. M.

11. E. W. PHILLIPS, M. D. - - - Phoenix, Ariz.

"The Role of Indiscriminate Tonsillectomy in
Lighting Up the Tuberculosis Case."

12. GEO. PINFESS, M. D. - Los Angeles, Calif.

(Subject to be announced.)

13. JAMES F. PERCY, M. D. - Los Angeles, Calif.

"Cautery Surgery in Carcinoma Above the
Clavicle." (Illustrated.)

SATURDAY, MAY 12, 1928

MORNING SESSION, 8:00 A. M.

8:30—Meeting of House of Delegates.

Election of Officers.

SCIENTIFIC SESSION

14. M. B. CULPEPPER, M. D. - Carlsbad, N. M.

"X-Ray Dermatitis."

15. CRUM EPLER, M. D. - - - - Pueblo, Colo.

"Gall Bladder Surgery." (Specimens Mounted
in Natural Color Will Be Shown.)

16. ROBT. G. PACKARD, M. D. - - - - Denver, Colo.

"The Treatment of Infantile Paralysis."

12:00—Luncheon.

AFTERNOON SESSION 1:30 P. M.

17. VICTOR E. CHESKY, M. D. - Halstead, Kans.

(Subject to be announced.)

18. ALEXIUS M. FORSTER, M. D., Colorado Springs.

(Subject to be announced.)

GENERAL SESSION, 3:00 P. M.

Report of House of Delegates.

Resolutions.

Good of the Profession.

Adjournment.

4:00 P. M.—Meeting of New Mexico Tuberculosis
Association.

GEORGE P. SAMPSON

Dr. George P. Sampson, veteran physician of Winslow, Arizona, and one of the pioneer physicians of Arizona, died at his home in Winslow, on March 23, following an illness of six weeks. Dr. Sampson was born in 1855, and graduated in medicine from the Miami Medical College of Cincinnati, in 1880. He came to Arizona about thirty years ago and has been located in Winslow during this third of a century, actively practicing his profession. He has served several terms as county health officer and has been prominent in civic and public affairs. He has been a consistent and active member of the Arizona State Medical Association for years, helping to form the Navajo-Apache County Medical Society and serving as its secretary until quite recently. During the funeral services, the stores and places of business were closed, as a testimony of the high respect in which he was held by his fellow citizens. Truly, a man has not lived in vain, when he can create such sentiment in the hearts of his fellow men.

TWO COURT DECISIONS OF INTEREST

The Supreme Court of Arizona has ordered a retrial in the contest of Dr. W. F. Chenoweth of Nogales, to collect fee of \$10,000 for professional services rendered over a period of years. This fee was first allowed by the District Court, whose decision was reversed by the Supreme Court; upon reargument by the doctor's attorneys (Whitney & Baker of Phoenix,) the Supreme Court has ordered a new trial of the case. We commented on this case in an editorial in the February issue of this journal.

The other decision of interest has also been mentioned in the pages of this journal. Dr. J. I. Butler of Tucson was sued for alleged x-ray injuries to a patient under treatment for sarcoma. The patient died from the sarcoma and the complaint was that the x-ray treatment contributed to the fatal outcome. Verdict for the plaintiff in the sum of \$1500.00 was granted; this was reversed by the Supreme Court, who remanded the case for retrial. Verdict was again given for the plaintiff, and on appeal, the Supreme Court again reversed the decision and, this time, ordered verdict for the defendant, on the grounds that no testimony had been introduced tending to prove that the x-ray treatment contributed in any way to the fatal outcome of the disease.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

(Southwestern Division)

The Southwestern Division of the American Association for the Advancement of Science will be held at Flagstaff, Ariz., April 23 to 26. This Division embraces the members of the Association residing in Arizona, Colorado, New Mexico, West Texas, Sonora and Chihuahua, Mexico. The president is Lansing Bloom, of the School of American Research, Santa Fe; the secretary-treasurer is W. P. Taylor of Tucson, Ariz. Dr. E. C. Prentiss, of El Paso, is the chairman of the Section on Medical Sciences. This is the ninth annual meeting of the Southwestern Division.

EL PASO COUNTY MEDICAL SOCIETY

February 6.

The meeting was called to order by the president, Dr. E. J. Cummins, with thirty-two members and six visitors present.

DR. W. E. VANDEVERE reported a case of a thumb tack lodged in the left bronchial tree, showing a radiogram demonstrating the tack in the bronchus. The doctor removed the tack by the use of the bronchoscope, complete recovery of patient resulting.

A letter to the Society from the El Paso Scholarship and Loan Fund was read and discussed. Motion was made, seconded and carried that the secretary write a letter to the organization asking that a member of its Board of Directors appear before the society and explain further its scope and purpose.

Application for membership of Dr. J. J. Gorman was reported upon favorably by the Board of Censors, and he was unanimously elected to membership in the Society.

DR. CASELLAS showed radiograms of interesting cases of tuberculosis, as follows:

1. Interesting because of location of the lesion. The upper lobe is free but for a little triangular area in the uppermost portion of the middle lobe. The middle lobe starts at the mid-axillary line on the fourth rib and goes downward and forward to end at the seventh rib in front.

2. Baby about three months old, who died while nursing. The condition of the lungs showed very extensive military tuberculosis.

DR. WILLIS W. WAITE displayed the lungs of the child, calling attention to the fact that they are hard and solid, yet full of tubercles. The child apparently was not sick—at least the parents did not know it was sick—and it died without medical attention. It is very probable that somebody in house had open tuberculosis.

DR. S. H. NEWMAN reported cases, as follows:

1. Mexican man, age 49, laborer, entered the hospital Nov. 21, 1927. Gave history of having trouble with both eyes two years ago, more so on left side. Present complaint: Has been ill since last February; has been working at the smelter and it seems that the dust gave him a stinging sensation. Went to the hospital at the smelter for perhaps a week after being unable to continue on duty, on account of partial paralysis of face, and staggering, largely from weakness. Physical examination showed eyes blinded, throat inflamed, few rales in right chest, slight rigidity over spine, skin dry, temperature 100, pulse 99, respiration

20; otherwise, chart shows negative findings. Urinalysis specimen was partly water; blood Wassermann negative. Working diagnosis was luetic paralysis. Patient was put on potassium iodide, and had a good deal of vomiting. He died December 22, 1927. Final diagnosis on chart, luetic paralysis and malnutrition. DR. WILLIS W. WAITE, who made postmortem, reported there was not enough evidence to make the diagnosis of luetic paralysis, and postmortem findings showed acute tuberculosis in the right lung. The brain was not removed or examined, as nothing was known about the history of the case.

2. A. C., age 43, occupation not stated, was in hospital from February 16, 1927, until he died in January, 1928. Had been receiving intravenous and intramuscular injections at the clinic and said his blood was examined there. No history of tuberculosis or cancer; family history negative. Present complaint: had been blind for almost nineteen months, loss of sight coming on gradually. He went to the clinic and was given antisyphilitic treatment without improvement, gradually becoming totally blind, and was sent to the hospital by the Associated Charities. Physical examination showed blindness in both eyes; otherwise negative. Blood pressure, systolic 140, diastolic 65; urine and blood Wassermann negative. Diagnosis: luetic paraplegia. He ran normal temperature, and pulse was normal except in the last couple of months, when it ranged between 90 and 100, up and down. He was rather restless, did not take interest in anything or in his condition, but did not complain; talked very little and gradually became entirely irrational; was very uncleanly and would soil clothes and bed; finally took to bed and rarely got out of it; died, January 5, 1928. The progress chart shows that on March 5, 1927, he had some sort of paralytic stroke, when he frothed at the mouth, muscles twitched, and partial paralysis of the right side resulted but had entirely disappeared by May 22nd. What cured him, chart does not state. Final diagnosis: general paresis.

DR. WILLIS W. WAITE reported that the body was markedly emaciated when postmortem was held, and that it was a typical case of paresis. By way of comparison, he displayed specimens of normal brains, pointing out the difference in this case and calling attention to the fact that parts were missing which should have been present. The doctor stated that, in most cases of general paresis, you get a positive Wassermann, whereas in this case Wassermann was negative, and there was no record of a spinal fluid examination, which in these cases is always positive.

DR. E. W. RHEINHEIMER reported a case, as follows: L. H., age 53, colored, widow; occupation, cook; weight, 148; height, 5 feet, 2 inches. Family history unknown. Past history: Had measles and mumps during childhood; typhoid, ten years ago, with uneventful recovery. For about ten years she has had what she calls epileptic fits or attacks, during which she falls, grinds teeth and remains unconscious for several minutes, the attacks appearing at intervals of an average of every six months. Menstrual history began at 18, always regular and of three days duration, except in 1926, when two periods were missed, and again in 1927, when two periods were missed. No pregnancies, no abortions or miscarriages. Last menstruation in April, 1927. Has had bilateral cataract for several years, the left being operated on about three years ago, without success.

The patient has had diabetes to her certain knowledge for the past six years, the manifestations being excessive thirst, polyuria and slight weakness. About four years ago, the small toe of the right foot became "sore" and did not heal under

ordinary home treatment. A physician prescribed a special diet and the toe then healed. About three years ago, the left foot became gangrenous, involving all the toes and the dorsum of the foot. Entered hospital at Austin, Texas, where she remained six months on insulin and diet treatment. There was extensive sloughing of the foot and amputation was considered. However, under treatment and drainage the foot gradually recovered. In August, 1927, again had slight gangrene of the left foot and was treated in the El Paso City-County Hospital with insulin, and recovered. During the course of the diabetic period, she has been on more or less desultory diet, at times adhering to the outlined diet, especially when gangrene has complicated the disease. At other times, she has eaten practically what she wanted, the usual average meal consisting of meats, vegetables, especially of the green variety, fruits and gluten bread. It is known that whenever the opportunity presented itself, she ate candy and other carbohydrate foods. The weight has remained the same, practically, for several years and she has felt well, being able to pursue her duties except when the feet have been involved. No history of excessive headaches; venereal disease denied.

Present complaint: Since about January 5th, the right foot has been sore and tender and at the present time is extremely sensitive, especially the distal portion and around the instep. At the base of the small toe, dorsal surface, is an ulcerated area about two centimeters in diameter, from which there is a foul, dirty discharge. On the palmar surface there is a smaller ulcerated area with the same dirty discharge. The skin over the entire instep is dusky purple in color with areas of yellow discoloration. On the lateral surface of the great toe, is a gangrenous area about three by two centimeters in size. Patient feels well but has excessive thirst. Has been dieting since the onset of the present trouble, but thinks she needs some insulin.

Examination shows a well developed and nourished colored female, apparently not very ill. There is an excessive fat deposit, especially over the chest and abdomen. Head negative except that several teeth are missing and the remainder dirty. Chest: lungs negative except that there is slight high pitch to the percussion tone over the left base posteriorly. Heart apex beat not felt or seen, left border nine centimeters from midsternal line, right border three centimeters from midsternal line, base 4.5 centimeters, the outlines being determined by percussion. Sounds normal, rate 76. Abdomen: no evidence of abnormality made out. Extremities normal except considerable scar tissue on right foot and the above indicated infected and gangrenous areas of the left foot. Nervous system: no evidence of abnormality made out. Extremities sp. gravity, 1036; albumin, positive; sugar, 2.5 per cent; indican, negative; acetone, trace; diacetic acid, negative. Microscopical examination: large amount of pus, few granular and a few hyaline casts, few red blood cells.

Treatment and course: Patient in bed, given outlined diet providing 1600 calories daily and insulin 24 units daily, given 10 units in a. m., 6 units at noon, 8 units in p. m. Hot saline packs to foot. January 15, 1928, incision was made in instep, left foot, and small amount of broken down tissue evacuated. Urine: acid; specific gravity, 1028; sugar, positive 1.22 per cent (40 grams); albumin, positive; pus, hyaline and granular casts present. January 16, 1928, patient apparently has gripe, temperature 104, pulse 118, throat red. Given alkali and push fluids, phenacetin 5 gr. every four hours. Foot looks considerably better, gangrenous area on left great toe dry, no pain in foot, consider-

able drainage from small toe and instep. January 18, 1928, patient was found in comatose state this morning breathing slow and regular, no acetone odor to breath, no twitching, skin and mucous membranes very dry, pulse rate 60 per minute, urine passing involuntarily. Urine: albumin 30 to 40 per cent, sugar not determined. Blood pressure, 150/100. Apparently uremic coma. Given intravenous fluids, stimulants, without avail and died January 19, 1928.

Now the question in connection with coma was whether it was diabetic, uremic or the result of too much insulin. The last can be ruled out. There was no acetone odor to the breath; the tension on the eyeballs did not indicate diabetic coma. Here was a case that had apparently done well on the diabetic treatment when she would follow it. However, she would take insulin only when she had gangrene. If she had taken the treatment and persevered with it, she would never have come to the end she did. What probably caused the end result was this acute infection and involvement of a damaged kidney. It seemed to be a rheumatic coma, rather than diabetic.

DR. E. A. DUNCAN, in speaking about the ordinary routine management in cases of diabetes, stated that this is a disease which should be handled by the general practitioner; that the disease is widespread and the services of one who has special knowledge are usually not available. The doctor cited the case of a woman who came into his office, as follows:

Patient 74 years old, complained of loss of weight and excessive thirst; no fundamental history of diabetes, but with the loss of weight and excessive thirst, it was quite probable what the situation was. No previous serious illness, vision good. At one time she had had an attack which was said to be due to gallstones. This was sometime last fall; one year ago was rejected for life insurance. She said she had some sort of examination and did not pass the examination.

Present illness: Dates the loss of weight back to last April. Says she has lost 50 pounds since that time. She requires cathartics daily; nothing else of importance in her history. Examination showed no abnormalities except her very recent loss of weight. She is 60½ inches tall and weighs 130 pounds. Now, looking at the chart, we will find that 136 pounds is normal weight for this height, but you do not need this when you want to make a diet adjustment. The urine specimens had a tremendous sugar content and turned bright orange with ordinary Benedict's test; no diacetic acid. Here was a plain, apparently uncomplicated, case of diabetes developing in an elderly woman who had been overweight—an important factor in the development of diabetes. In beginning a diet adjustment in diabetes, we want to know, first, what the patient is going to require, and whether it is entirely necessary to use a restricted diet. If patients are normal weight, or slightly under, there is no reason for reducing. Now, you can figure in these cases that a person 5 feet tall should weigh 110 and for each inch over that, should weigh 5 pounds more. Weights by that measure are a little less than the average weight tables, but the weight tables are too high for healthy people. This woman is 74 years old; the body processes have more or less slowed up and may take less calories than averaged by her height and weight scale, which is 1860 calories. The only way that can be shown, however, is by time. Some people eat very little and maintain normal weight, or gain weight. Scales are the only things that can determine whether the caloric requirement of the average individual is being maintained. We assume she is going to require 30 calories per kilogram weight and she weighs

62 kilograms. How is that going to be apportioned in her diet? To begin with, every adult must have ⅓ of a gram of protein per kilogram of weight, to take care of the tissues, as, if he has less, he burns up the tissues. We must, therefore, give ⅓ of a gram per kilogram of body weight to be on the safe side and at the outset, to be perfectly sure, I will give her a gram. So I have worked out a diet for her and she went to the hospital yesterday afternoon. I will keep her on this diet for two or three days and if, after that, she still runs sugar, she is going to be an insulin case. If she does not, then I can add 9 grams carbohydrates and 2 grams protein. If, however, she continues to run sugar, she is going to be an insulin case and I then find out how much insulin she is going to require. This is ascertained by saving the urine for 24 hours. Say the total quantity in 24 hours is 2000 c.c. and it runs 1 per cent or 20 grams sugar. She has then an intake of 114 grams and her tolerance is 94 grams. We have to give her enough insulin to take care of this glucose she is not burning. It varies from .75 grams per unit up to 3 grams per unit, so we will presume she is going to require 10 units per day, which can be given in one dose in the morning. To start with, to be a little certain we are not going to give her too much, we give her 8 units in the morning. If that takes care of this sugar, well and good. After two or three days, get the blood estimation of sugar. If it is under 150 mgm. per 100 of the blood, we let her stay at that. If in three days she is free of sugar, we can experiment by adding carbohydrates. Before letting her come out of the hospital, make sure her blood sugar is down to the normal level.

A woman 74 years of age ought to be a mild case and ought to be easy to handle. I think she probably will not be an insulin case. I have several elderly ladies who have started on insulin and who require it because they could not maintain a sugar-free urine or low enough blood sugar without insulin. In the course of three or four months, they are taught to test their urine and report to me. If they have had no sugar and maintain body weight, have no itching or skin eruptions, and no excessive thirst, I tell them to stop the insulin for one week and at the end of that time go to the laboratory and have a blood sugar test made on an empty stomach. I get the report, and if the pancreas has come back enough for them to digest a diet, that is sufficient for them, they need no more insulin.

Another case is that of a boy, 15 years old, who weighs 50 kilograms. He is only 15 years old, so has to grow some and has to manufacture body tissue. To do that he has to have more than this woman, who was given approximately one gram protein per kilogram, so he requires more protein and more calories. A child 4 years old requires 3 grams protein in order to maintain body growth; the minimum in adult life is ⅓ of a gram per kilogram. The vast majority of children with diabetes require insulin. In this case, however, with adjusted diet, the child soon became sugar-free and did not need insulin.

DR. WILLIS W. WAITE presented specimens of the normal pancreas and those of persons who had had diabetes, pointing out the difference.

DR. F. D. GARRETT complimented Dr. Duncan on the excellent manner in which he had outlined the subject of diabetic feeding and told of a series of 97 cases of pancreatitis, of which 93 had gall-bladder infection. Of these 93 cases, 34 had stones, showing that, from the standpoint of the surgeon, infection of the gall-bladder is by far the most frequent cause.

DR. K. D. LYNCH spoke on acute cases of pan-

creatitis, citing a case which he had in his early practice.

DR. E. B. CLARK reported a case of cirrhosis of the liver, stating that it had come under his observation some three months ago, but he was unable to make diagnosis because the man had so many complications. The patient was very contrary and it was impossible to get a specimen of urine or get an opportunity to take his blood pressure until about three weeks before he died. At that time blood pressure was 120/70 and urine showed a great deal of albumin. The patient did not complain of any special pain in his left side or over the heart region, but unquestionably he did have a great deal of pain and would say nothing about it. He died suddenly and, on autopsy, it was found that he had an old infarct which had healed, apparently, and after that had a very recent infarct, which was of enormous size.

DR. G. WERLEY stated that he remembered this case very well, that he had been called in some years ago and had been watching this man for the past five years hoping he would die before he (Dr. Werley) died, because he wanted to see what was the matter with him. Dr. Werley stated that this man was about 70 years of age, an old ice cream dealer, who had his first attack of pain in the stomach and chest about five years ago. "I did not see him at that time, but later, in August 1923; when I first saw him, he said he had always been well until six months before, except for a little shortness of breath. In May, 1923, he started to walk across the street to look after a house, when he was seized with a very violent pain in the middle and upper sternum and came back to the house in great distress; was short of breath, coughed incessantly, vomited a great deal of blood which came up in clots and later looked like beef juice; pain continued for 24 hours, was given morphine but without relief. Recovery was very slow. X-ray picture was taken with the idea that he had cancer of the stomach or ulcer, but was negative. Before this attack blood pressure had been 170. After he got over this attack, in order to recuperate he went to Cloudercroft, but got short of breath, blue, started vomiting, etc., and the doctor there told him to get away as quickly as he could.

"When I saw him the heart sounds at the apex were feeble and not well produced, liver easily palpable, both lungs congested at base, mind confused, and apparently he had all kinds of delusions. In many of these old heart cases, we have a condition of mind that seems as though they are going to be permanently insane; however, the mind always comes back. Wassermann reaction was negative, both blood and spinal fluid. He gradually improved and in January, 1924, I made the following note: Still has dyspnea and cannot sleep well; pulse 94; blood pressure 130/80; heart regular. He got fairly well after this, but was a very hard man to manage."

DR. WILLIS W. WAITE reported that autopsy in this case showed some old tuberculosis and adhesions in the lungs, but the most important lesion was in the heart. Dr. Waite had specimens of hearts from normal, healthy individuals, which he compared with this heart, pointing out the hypertrophy and aneurism, showing the old and the more recent infarcts.

(February 13).

The El Paso County Medical Society met in regular session February 13, with a paper on Bovine Tuberculosis by DR. WM. BRANCH.

The paper was a detailed resume of the subject and dealt particularly with the economic aspects of the disease. The increased demand for good milk from certified or tested herds has led to milk

embargoes in several of the leading cities. As an article of diet, milk must be considered the most important and the most perishable. Dr. Branch emphasized the occurrence of contact and congenital bovine tuberculosis and the consequent continuity of infection among dairy cattle. He is very optimistic over the possibility of maintaining healthy herds by the Calmette inoculation of calves with the attenuated bovine tuberculosis cultures.

In his own herd, Dr. Branch is hopeful of trying out the experiment shortly, if the culture is available. Since bovine tuberculosis is essentially a gland and bone disease, the elimination of diseased milk naturally diminished the incidence of these particular types of infection in many cities. Statistics were given from many clinics that indicate a general lessening of bone and glandular tuberculosis.

In conclusion, Dr. Branch recommended: (1) The eradication of the tubercular cow (a preventable source of disease); (2) infected children in unsatisfactory surroundings should be placed in preventoria; (3) the ultimate slaughtering of dairy calves or immunization; and (4) the routine test for tuberculosis of all cattle, whether dairy or otherwise.

DR. HARRY LEIGH opened the discussion. He pointed out the local decrease in bone tuberculosis, especially during the past five years. Most cases of gland and bone tuberculosis come from the outlying districts, among those who are using milk not subject to control. He stated that he was not ready to accept Calmette's work on immunization although the results have been highly gratifying so far.

DR. LAWS stated that he was seeing much less bone and joint tuberculosis, in fact, only two cases in the past year and those were imported. He also thought time would tell whether Calmette's work was applicable to humans, but at present preferred waiting.

DR. EGBERT spoke and advocated continuation and expansion of dairy inspection.

DR. J. A. HILL, V. S., was invited to tell of his experiences in dairy inspection. A report of a recent meeting at Oklahoma City, on control and prevention of the spread of bovine tuberculosis, for the south central states, was given, with many hints applicable to local conditions. Dr. Hill stated that the well regulated dairy was no longer a menace to public health, but the trader and the small one- and two-cow dairies constituted the principal sources of infection at present. Unable to legally control the small dairies in the out-of-town districts, a means of declaring an area subject to complete tuberculin testing was discussed and the advantages to the producer emphasized. Thus, a tuberculosis-free area commands higher prices for pork as well as milk, and more than compensates in the long run for incidental expenses. Dr. Hill reported on several instances where institutions of learning developed many cases of tuberculosis among the students, that on investigation showed that the herds supplying the milk were 100 per cent infected and were the probable source of the disease.

JUDGE E. B. McCLINTOCK addressed the Society and invited them to participate in arranging some plan for the area organization. In addition to this task he asked for help in selecting a site and building for a new City-County Hospital. He said that the new institution should be in a location to serve the greatest number of patients, to aid in the humane care of emergency surgery and to facilitate the charity work of the clinics. The need of isolation of contagious and tuberculosis was apparent.

Mr. Price of the Price Dairy Company, briefly discussed their experience with "reactors" and

"plugged" cattle in eliminating infection from their herds. The history of the infection in the El Paso Dairy herd and the means of dissemination of the disease from the use of wooden troughs, was interesting from the contagious angle. He considers yearly testing in clean herds sufficient. Their only case in five years was a bull. All new cattle must be isolated for several months and have two negative tests before safe to turn into the regular herds.

DR. ANDERSON said he thought that, in infected herds, testing at six month intervals was not satisfactory, as he had seen reactors appear in a few weeks among cattle that were contacts.

DR. BRANCH closed the discussion by adding that his cattle were not pure breed and he figured he could experiment with the Calmette immunization without heavy financial loss.

(This paper appears in full in this issue of SOUTHWESTERN MEDICINE.)

(February 20).

At the meeting of the El Paso County Medical Society, held on February 20th, DR. P. R. OUTLAW read a paper outlining the life cycle of the malaria parasite and the role of the mosquito in the continuity of the disease. The title of the paper, "Potential Danger from Malaria in El Paso," was directed toward the handling of some of our own problems. The epidemic in Dona Ana County, New Mexico, he believes is a menace to El Paso County for some 350 cases were reported last summer alone and this probably constituted a small part of those actually infected. The carrier of the disease is the greatest menace and is the real source of the disease.

DR. McCAMANT, El Paso county health officer, opened the discussion by saying that the Rincon and Garfield districts had been sporadically infected for a long time. Last fall one case died in the upper valley, coming from Rincon. Some 350 miles of irrigation and drainage ditch offers a very satisfactory breeding place for mosquitoes of the Anopheles variety. These open water sites are full of vegetation and fulfill all the requirements for a satisfactory breeding place. He regards reporting most essential in the control of malaria.

DR. CASELLAS gave his experience in Porto Rico as a health officer and the excellent results obtained by maintaining ditches free from vegetation.

DR. ALEXANDER reported his fatal case of last summer, that had come from Rincon, New Mexico. The case was very malignant and the patient died after a very brief illness.

DR. JAMIESON told of the use of drip oil in running streams in a swamp area near war cantonments that were completely freed of malaria mosquitoes.

MAJOR SCOTT said that he had a large experience in mosquito control and that he regarded carriers as a serious source of infection. Also that it was only a matter of time until these carriers constituted a serious menace to El Paso. One case of double tertian that had been used to inoculate cerebral syphilis had come to his attention last summer. Dr. Gerber had traced most of the cases to one imported negro girl.

DR. EGBERT reported Dr. Bass's work in Mississippi, in which he had cut malaria incidence from 90 per cent of about 18 per cent simply by control of carriers.

DR. WM. BRANCH spoke on the improved conditions along the Trinity river since his boyhood days. There, oiling and drainage were the main modes of attack.

DR. SWOPE said malaria had been present in the Rincon valley for twenty-five years, to his own knowledge.

DR. OUTLAW, in closing, said that we had frequently oiled part of the land across the border in order to free the city of the mosquito nuisance as well as the suburban districts. Some 750 cess-pools are one of the big problems. Eleven thousand dollars (\$11,000) are appropriated annually to take care of the oiling and mosquito supervision alone.

DR. K. D. LYNCH presented a paper on "Congenital Cystic Kidney." The discussion dealt with all features of the disease and case reports were used to illustrate different types of the disease. Many of the theories as to cause were mentioned along with the present accepted view that the disease is often present at birth and that some secondary factor accelerates development. Pain, hemorrhage and tumefaction are sufficient to arouse a suspicion of this condition. X-ray findings are fairly typical. Differential diagnosis deals especially with sarcoma and tuberculosis. Frequently the correct diagnosis is made out only on postoperative study of the removed kidney. Such a case was reported where a young child was operated, supposedly for a sarcoma. Section showed the typical markings of a polycystic kidney. Most polycystic kidneys are hard to palpation unless there is abscess, and then fluctuation may be felt. Several cases of unilateral nephrectomy in multiple abscess conditions were included in the series. No fatalities had been encountered from the operation per se.

DR. JAMIESON opened the discussion with a case report where a hydro-ureter had fulfilled most of the conditions of a polycystic kidney and disappeared when a catheter was inserted. Since this maneuver there has been no recurrence of the tumor. Dr. Jamieson sounded a warning against double pyelography. He believes heredity plays quite an important part in congenital kidney.

DR. VANCE discussed the value of transperitoneal incisions for removal of large kidneys or kidney tumors. This incision enables one to get at the pedicle and control hemorrhage. Since his original description of this route he had modified the incision as follows: A lateral rectus incision is made down to the peritoneum and this structure is stripped off down to the pedicle of the kidney. In this way the necessity of two openings through the peritoneum is avoided. The advantage, in addition to hemostasis, is the adequate exposure.

MAJOR SCOTT asked Dr. Lynch why many cysts are found in the kidneys of tuberculosis patients.

DR. LEIGH mentioned the classical case of several polycystic kidneys from one family that are kept in the pathological museum at Northwestern University.

DR. LYNCH, in closing, said that he favored Dr. Vance's incision in some cases but the transperitoneal route was to be considered as the opening of choice for the removal of very large tumors. For tuberculous kidneys, the lumbar incision has some advantages in the suppurative cases. True enough, the route of Dr. Vance is very excellent where diseased ureters need removal. Several family records of cystic kidneys were cited to show that heredity is a factor.

(February 27)

At the meeting of the El Paso County Medical Society, held on February 27, Dr. George Turner presented a paper on "Diagnosis and Treatment of Bronchiectasis by the Injection of Iodized Oil." A number of slides were shown illustrating the

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conditions that oil had shown on x-ray examination. Dr. Turner then demonstrated the technic of the use of the oil in his laboratory. (This illustrated paper will be published in the May issue of this journal.)

(March 5)

At the meeting of the El Paso County Medical Society, held on March 5th, Dr. J. W. Laws presented a paper on the "Variation of Individual Cases of Artificial Pneumothorax." This treatise was supplementary to a similar paper read before the Southern Medical Association this winter, but the present paper has more detailed case records. The paper, with discussions, appears in full in this issue of Southwestern Medicine.

DR. RHEINHEIMER announced that the regular meeting to be held on Monday, March 12th, would be a joint meeting with the El Paso Dental Society, to be held at the ball room of the Hotel Paso del Norte. Dr. Boyd Gardner, Mayo Clinic, Rochester, Minn., will speak on "The Practice of Dentistry in Group Medicine."

(March 12, 1928)

A joint meeting of the El Paso County Medical Society with the Dental Society was held at Hotel Paso Del Norte, March 12th.

DR. BOYD GARDNER, D.D.S., of Rochester, Minnesota, who heads the dental service of the Mayo Clinic, addressed the meeting on "The Practice of Dentistry in Group Medicine."

Dr. Gardner first called attention to the fact that the modern dentist chair is the remaining vestige of the barber period of the early surgical practitioners. While, in the main, all the crudeness had given way to scientific equipment, the modern dental chair is still the barber chair and is in many respects as entirely unfitted for the surgery that is constantly being done. Continuing the idea, Dr. Gardner deplored the lack of surgical training in the dental profession and in the dental schools. He still regards dental surgery in main, as belonging to the antiseptic rather than to the aseptic period. The hospital, and not the dental office, is the place for surgical operations.

The surgical technic recommended by Dr. Gardner was, in a general sense, analogous to all generally accepted surgical procedures. First, shock from body heat loss and hemorrhage should be prevented. That means that patients following large extractions should not be permitted to walk home or to lie around the office, or to take an anesthetic in a cold room. Pain should be treated with heat or cold compresses and sedatives. Clots should be left undisturbed when attempting to relieve pain. The intact clot he regards as the first essential of healing and repair. Follow up visits should be made. A limited number of extractions should be attempted at a time and the patient's reaction by temperature rise, pulse elevation and pain, should be the guide to further surgery. Too much surgery at one time is dangerous. Care in preventing the introduction of outside infection can be accomplished through proper preparation of the patient and by employing sterile linen and instruments.

In ten years no mortalities have occurred at the Mayo Clinic from extractions. This he attributed largely to a careful selection of the anesthetic. He warned against the use of nitrous oxide in arteriosclerotic cases and in high blood pressure patients. He prefers local anesthesia because there is cooperation by the patient. A great deal of care should be taken against possible inspiration of blood under any anesthetic. Foreign body aspiration, such as fillings and

pieces of splintered teeth, are frequently found at the Clinic as a cause of bronchiectasis. Many months may elapse after the inspiration of foreign bodies before lung symptoms occur.

Dr. Gardner employs a surgical flap in extraction work to facilitate visibility of the gingival portion of the teeth. A chisel is used to smooth off osseous spicules to either side of the dental excavation, but care is taken to preserve intact the interdental bone with its rich blood supply. The gingival flap is sutured with interrupted catgut to approximate the edges. Dental impressions are made and false teeth are in use within two days if possible. Occasionally a bony ridge beneath the frenum of the upper lip must be trimmed down and the soft tissues reattached in situ; this procedure lessens the pain in the use of new plates.

Many slides were shown demonstrating the technic advocated. Dental x-rays of patients who had worn plates for years with supposedly complete extractions, but who still had roots intact were shown. A total of thirty-three of such persons admitted to Mayo Clinic have such a condition. Consequently re-check with the x-ray after extractions, is essential.

The place of the dentist at a clinic is to examine teeth as a consultant. The role of infection, mechanical defects and malocclusion and extraction when necessary comprise the bulk of all dental examinations done. Dental examinations done in a large clinic amount to about one-

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fourth of the total special examinations necessary. He believes that the search for focal infection should first eliminate such sources as the prostate, cervix, tonsils, colon, etc., before sacrificing the teeth in questionable cases. Dental infections in rheumatic conditions are important only in the strictly infectious types. The traumatic, senile and gouty varieties may have the dental infections as an aggravation, but not as a definite etiology.

(March 19, 1928).

At the regular meeting of the El Paso County Medical Society, held on March 19, DR. J. G. WILSON, Surgeon, U.S. Public Health Service, presented paper on "Classification and Diagnosis of Feeble-mindedness" with slides and cases to illustrate his treatise. He defined feeble-mindedness as "a state of restricted potentiality for or arrest of cerebral development, in consequence of which the person affected is incapable at maturity of adapting himself to his environment, or to the requirements of the community so as to maintain existence independently of supervision or external support." This then embraced three groups of cases, namely, the idiot, the imbecile and the moron. By defining and elaborating upon these divisions, Dr. Wilson showed the necessity for a measure of intelligence such as is found in the Simon-Binet performance ability tests. Thus, by using an average normal, for comparison, the idiot's intelligence will vary from that of a new born baby to that of a three year old; the imbecile from three to seven; and the moron from seven to eleven. The use of the quotients was then explained in detail. The importance of an exact diagnosis rests upon (1) the possibility of a cure of the patient himself, (2) the prevention of crime and economic waste, (3) the moral responsibility of delinquency, and (4) the prevention of propagation of feeble-minded stock. The tax

payer's money can be saved by proper classification of such cases and especially at the port of embarkation. (Paper to be published in an early issue of Southwestern Medicine.)

DR. S. D. SWOPE presented the second paper, on "The Psychoneuroses; Their Influence as an Entity and Their Importance in Medical and Surgical Syndromes." He recited a number of cases in the evaluation of clinical evidences of medical illustrating the importance of the physical factors and surgical diseases.

CAPTAIN PRATT, of the William Beaumont Hospital, opened the discussion. He emphasized the difficulty of differential diagnosis of the high grade moron because such persons are capable of a considerable degree of educational attainment. The inability of the moron to think along the abstract lines is of great help in classifying. Capt. Pratt believes the Simon-Binet method of classifying, or some method analogous to this, is most useful. Such a modification is used in the United States Army. Reformatory and penitentiary inmates and the prostitution elements are composed mostly of morons.

DR. ELLIOT PRENTISS asked Dr. Wilson what the present concept of the presence of Nisel granules in mental and nervous diseases meant.

DR. WERLEY commented on the practical application of Dr. Swope's paper in dealing with pseudo-angina in a certain type of cases that had occasionally come to his attention.

DR. SWOPE in commenting on Dr. Wilson's paper spoke to some extent on the present confusing nomenclature. He related the case of a family with a hereditary syphilitic taint in which four idiots were born to apparently normal parents. The grandfather on the father's side was a known syphilitic.

DR. DUNCAN spoke on the role of hysteria and

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the neuropathic complex in producing spurious disease. He regards psychoanalysis generally impracticable, on account of the time required to arrive at a diagnosis. Sometimes one hundred hours are needed to completely work out a case.

DR. WILSON in closing said he didn't know the significance of Nisel bodies except as an evidence of histological disintegration and cellular death. He urged the employment of simple and accepted nomenclature in classifying mental diseases.

DR. SWOPE in closing urged the elimination of the psychogenic elements in surgical cases.

(April 2)

The meeting of the El Paso County Medical Society on April 2, 1928, was a joint meeting of the El Paso Bar Association with the El Paso County Medical Society.

A clinical case of dystrophic amentia was presented by DR. SWOPE. The patient was a large young man, twenty-two years of age, with no ability to initiate or to carry out orders. This condition followed a severe typhoid in early childhood that apparently had produced a severe toxic encephalitis at that time. Prior to his illness the boy had been unusually bright, as are the other members of a large family of children. The young man has learned to ride on the ranch, but is not dependable. The only task he performs well is wood chopping. During the last few months muscular weakness has developed with some further mental deterioration. Dr. Swope believes that the frontal areas are progressively degenerating. The prognosis is bad—probably life will not exist more than a few months.

The first paper on Medical Ethics was prepared by DR. T. J. McCAMANT and read by Dr. Swope. The paper discussed the history and the earliest intractions of medical ethics and the history of the English and successive American codes. The tenor of the paper might be said to be that a gentleman never needs a code for honorable conduct. Such problems as consultation, medical relationship among colleagues, the patient, and the profession at large were duly considered. A plea for sponsoring the young medical man so as to discourage questionable practice was well received.

The feature of the evening was a scholarly discussion of the basic principles of medical jurisprudence by MR. MAURY KEMP. The complete treatment and technical nature of the paper must be read in another section of the journal for appreciation. (See next issue.)

Discussion was opened by Mr. Nealon, attorney, who told of the gradual trend in the criminal laws dealing with liability for crime during insanity or while under the influence of drugs. Attorney Nealon, with other members of his profession, raised points on old cases previously tried in the local courts where medical testimony was concerned. Pointed, crisp and sparkling humor was infused in the generous razzing accorded certain doctors and the essayist.

DR. EGBERT deplored the necessary exaltation directed toward the fee splitting problem and the unwarranted exaltation of an occasional consultant whose surgical services are needed. He espoused the lawyer's method of handling fees in legal consultation. The European method of having the court appoint medical experts he believes superior to our system.

ATTORNEY FRYER thinks the dispensing with the present system of using expert witnesses would seriously impair justice of the courts in criminally insane or those suspected of being insane.

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STAFF MEETING OF EL PASO MASONIC HOSPITAL

February 1928

DR. HARRY VARNER reported a case of a multipara booked for delivery March 26, living fifteen miles from El Paso. She went into labor Feb. 2 and came to the Masonic Hospital with her own physician. The membranes had already ruptured and she was delivered almost immediately after admission. Dr. Varner arrived just after the patient had delivered a headless monstrosity. Almost immediately a second living fetus, delivered by a breech presentation; it appeared to be about two months premature. The placenta was examined and seemed to be complete. The cord of the monstrosity was unusually small being about the size of a match. The second fetus lived about twenty-three hours. Nine days after delivery the patient passed several large clots and bled profusely. She had had no fever and no pain. Thirteen days after delivery, the patient got out of bed and had so profuse a hemorrhage that she was immediately taken to the surgery. Examination revealed a second placenta about two and one-half inches in diameter on the anterior wall of the uterus, extending down into the cervix. This had partially separated so the loosened portion was removed and the uterus packed to control the profuse bleeding. The next day the rest of the placenta came away. No further trouble was encountered.

The family history is of interest in this case because the father of the infant is a twin, with a twin sister who is a deaf mute. The premature infant was of fair weight, but was weaker than usual for a child of that gestation and weight.

In discussion, DR. RAWLINGS remarked that the unusual feature of the monstrosity was the complete absence of a head. He said that he had seen many without faces and with portions of the brain visible, but that this is the first he has seen where the development stopped at the neck and shoulders. (The specimen was shown and examined.) He also called attention to the second placenta which being so low had not caused hemorrhage until late and had never produced fever.

In Dr. Varner's opinion it was the small placenta of the monstrosity, removed following the bleeding, since the larger delivered was attached to the living child at birth.

DR. RAWLINGS presented a case of hemorrhage in the newborn. This was a male baby,

normally delivered with a labor not unduly long. Twenty-four hours after birth the infant began to vomit blood in rather large amounts. Twenty c.c of blood, obtained from the nurses, were injected into the buttocks of the child with immediate improvement of this condition. The baby made a complete recovery, eventually, although it developed a pyloric spasm which persisted for three or four weeks. The regurgitation was controlled by the administration of atrophine and thick gruels with a satisfactory gain in weight. In commenting on hemorrhage of the newborn, Dr. Rawlings said that in his earlier experience many of these cases had died, and that a few years back, doctors felt reasonably sure that such

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infants had a bad prognosis. He stated that he did not remember exactly when it became known that hemorrhage of the newborn could usually be cured by injection of blood from anyone at hand (preferably the father), into the muscle of the child, if given early enough and in sufficient quantities. In these cases, or in cases of cerebral hemorrhage of the newborn, he called attention to the importance of noting the bleeding and clotting time of the child. In hemorrhages of the newborn, and in cerebral hemorrhage, the average normal clotting time of five to seven minutes is often prolonged. Occurrence is early and is not due to syphilis. Dr. Rawlings had had, or had been the consultant in, three cases, in the last six months. One case began to bleed the second day after delivery but the injection of blood was not given until the fourth day.

It was his opinion that the injections were usually given too late, and that, had this case been given the blood immediately after bleeding started the baby might have been saved.

Another case related by Dr. Rawlings was where a midwife had delivered a Mexican woman, and the next morning the child began to bleed from the rectum. The diaper contained at least one and one-half ounces of blood; other diapers showed equal or greater amounts, indicating at least ten ounces of blood had been lost. This child was sent to the City-County Hospital, but it died the next morning, in spite of blood injections. Of these three cases, two were fatal, but one might have been saved if given blood in time. Dr. Rawlings called special attention to the fact that blood does not have to be typed to be used for the bleeding child. The only thing to guard against is syphilis; therefore if the father is available, it is best to take his blood, and if not, take any available non-syphilitic donor, withdraw the blood from the vein into a 10 or 20 c. c. syringe, and injecting it immediately into the buttocks of the child. It has been found that human blood is the agent that will act best on these patients suffering from hemorrhage of the newborn, although horse serum is of value.

The patient can hemorrhage from any mucous membrane, but those that seem to be hardest to deal with are the type that bleed from the bowel. He mentioned the type where a baby is said to be menstruating, and stated that this is one of the types of hemorrhage of the newborn which should be carefully watched, and if this continues, blood injections should be given.

DR. E. J. CUMMINS reported a case of ovarian cyst, the most interesting feature of the case being the method of diagnosis.

The patient, a white woman of 27, married three years, never having been pregnant, noticed that her abdomen was increasing in size. She had no nausea, missed no menstruation, had no symptoms whatever except that her abdomen was gradually taking on the appearance of that of a pregnant woman. She was examined by a physician and told that she was four and one half months pregnant. One month later she was examined by another physician and told that she was five and one half months pregnant. One month after this examination, some doubt arising in her mind as to her condition she came to El Paso, where the following physical signs were found on examination:

Fairly well nourished woman who appeared to be perfectly normal except for the enlargement of her abdomen. The abdomen was symmetrically enlarged, and on inspection one would judge that she was six and a half or seven months pregnant. Palpation revealed a mass, symmetrical in out-

line about the median line, extending from the symphysis to about three fingers above the navel. The mass was soft, gave a sensation of fluctuation, was freely movable, and seemed to be within the body of the uterus. No fetal parts could be palpated. No tenderness over the kidneys posteriorly; liver and spleen could not be palpated. On vaginal examination, the cervix was found pointing downward, rather soft, no unusual discoloration of the vaginal or cervical mucosa. On bimanual palpation, the mass described above could readily be felt in the vagina, when pressure was applied to the abdomen. One seemed able to force the hand on the abdomen, between the turned to the right. The ovaries as such could not be made out. One did not get the impression that the mass arose in the broad ligament, because there was no bulging in the region of the adnexae. Examination did not cause the patient any pain.

X-ray pictures did not reveal any sign of a fetus. It was very evident that the patient had an abdominal tumor, probably an ovarian cyst. Lipiodol was injected into the uterine cavity and the tubes, very definitely showing the nature and origin of the tumor. The uterine cavity was small, the uterus pushed almost to a right angle toward the right, the right tube being normal in size and position. The greatly elongated left tube extended upward almost to the costal margin. This confirmed Dr. Cummins' diagnosis of ovarian cyst. The enlarging ovarian cyst had carried the tube with it, as it increased in size.

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The family history is interesting. The mother has a twin brother, the father a twin sister, and the patient's husband has twin uncles. Past History: The patient had never been ill except for the diseases of childhood, including mumps. She states that when she had mumps, she remembers that she went out in bad weather and got wet, but does not remember that she had any ovarian pain at that time. When she was in the sixth grade, she had occasional attacks of pain in the left side, once being doubled up on account of the severity of the pain. This was before she had begun to menstruate, but after she had mumps. Menstruation began at 13, and she had no irregularity, and no pain except for a time between the ages of 16 and 18.

Operation: Under ethylene anesthesia, incision was made about one and one half inches above the navel extending downward to the symphysis, one half inch to the left of the median line. The abdominal cavity was opened through the posterior rectus sheath, and the tumor found to be much larger than the incision. It immediately bulged into the wound, and every time the patient breathed, a little more of the tumor delivered itself. It soon was practically expelled from the abdominal cavity. The ovarian pedicle was clamped and the tumor removed. The pedicle was ligated with No. 1 chromic, the raw surface covered over with peritoneum. A small cyst was removed from the right ovary. The right tube was normal. The appendix was found to contain concretions and the distal end was clubbed; the appendix was removed. Patient made an uneventful recovery, leaving the hospital on the fourteenth day.

Pathological Report (Dr. Geo. Turner): The specimen consists of a large tumor removed from the

abdomen together with the appendix. The tumor is a smooth encapsulated mass arising from the ovary. It measures 37x28 c.m. and has an elliptical outline. The capsule is a tough, rather thin fibrous membrane, constituting the capsule of a cyst. When it was opened about 2000 c.c. of mucinous clear fluid escaped. This left a cluster of smaller chambers, each about 4 to 6 cm. in diameter projecting from the pedicle into the larger cyst cavity. These smaller chambers also contain mucinous fluid varying in color from clear to yellow. All cyst cavity walls are smooth with no tendency to epithelial ingrowth. The appendix measures 8x9 m.m. The serosa blood vessels are tortuous, congested and prominent. The mucosa is thickened and infiltrated with endothelial leucocytes and round cells. It is filled with fecal matter.

Diagnosis: (1). Ovarian Cyst; (2) Appendicitis, chronic.

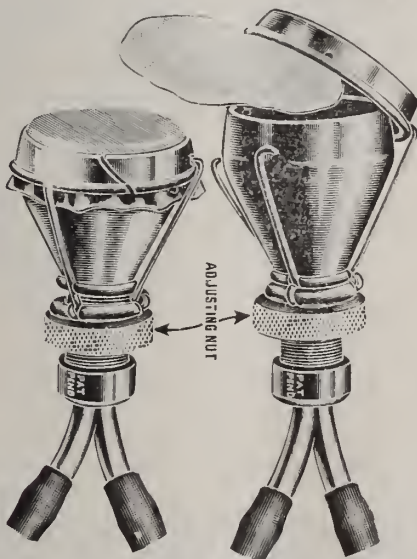
EL PASO COUNTY NEWS

DR. E. J. CUMMINGS has moved from the office group of Drs. Brown, Randel and Thompson, Mills Bldg., to share office space with Drs. Hendricks and Laws, Mills Bldg.

DR. N. G. PADEN, Carrizozo, New Mexico, was an El Paso visitor late in February.

DR. FRANK C. GOODWIN, orthopedic surgeon, has opened offices in the Mills Bldg. Dr. Goodwin is a graduate of the University of Virginia Medical School. He interned one year at St. Paul, (Minn.) General Hospital, one year at the Virginia State Orthopedic Hospital, and one year at the Gillette Crippled Childrens' Hospital, at St. Paul, Minn.

DR. SAM ARONSON has recently returned



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from a trip to Houston and points east for the study of physiotherapy.

DR. HUGH CROUSE continues to improve and we hope to see him shortly at his office.

DR. MARROTT has recently been appointed assistant city health officer to Dr. Outlaw.

DR. J. B. HUGHES, who has lived at Anthony, Texas, for the past fifteen years, died April 4. Dr. Hughes came to the southwest for tuberculosis and had practiced for many years at the place of his residence. He is survived by his widow and two sons.

DR. G. D. CARTER, of Anthony, who for several years was associated with the Homan Sanatorium, suffered a stroke of apoplexy in March. Dr. Carter seems of be making satisfactory progress in his convalescence.

DR. W. S. DEPREE was instantly killed March 24, when a small truck in which he was riding collided with a Santa Fe train. His older son, a student at the Texas School of Mines, was also instantly killed in the same accident. Dr. Dupree has practiced medicine in Mexico and at several points in the southwest. He was 48 years of age, and a graduate of Tulane Medical School. Some months ago the doctor decided to retire from active practice of medicine and to ranch in the upper valley. One young son and a widow survive the physician.

DR. O. E. BROWN, of Tucumcari, was in El Paso April 3, on business.

DR. G. WERLEY spent some time in Artesia, New Mexico, in March on a consultation.

DR. HARRY LEIGH presented a paper before the Grant County Medical Society, at Ft. Bayard, March 30, on "Acute Non-Diphtheric Laryngeal Obstruction."

DR. F. J. DUNN, M.D., Ph.D., a graduate of Vienna (1904, 1911), has joined Dr. Waite's laboratory service. Dr. Dunn was clinical pathologist of the Foreign Legation, Shanghai from 1924 to 1927. Blood pathology has been a specialty with Dr. Dunn. At present he is classifying and listing the material from some five hundred autopsies of the El Paso Pathological Society.

DR. J. H. RINEHART, a graduate of the Kansas Medical School, has recently located here in general practice. He has opened an office at 520 Mills Building.

DR. W. W. WAITE announces an extension of his pathological service by the addition of Dr. Dunn. Better facilities for tissue work have been added by acquiring new space and new equipment.

EL PASO HEALTH DEPARTMENT

Measles has taken a high place in El Paso contagions as a cause of death, directly and individually, already this year. A similar epidemic in the winter of 1921-22 resulted in some 65 deaths directly due to measles. The remote effects of the city epidemic was especially felt with the onset of hot weather. Since measles epidemics repeat themselves a similar effect may be safely anticipated from the present epidemic. During February, 430 cases were reported at the Health Department and already 18 deaths have been reported. That means a four per cent mortality. Owing to difficulties in getting the foreign population to report or seek help, this figure of death percentage is probably very high. On March first, 196 cases were still in quarantine.

A total of 110 cases of scarlet fever were reported during February with 89 still in quarantine the first of March.

BIRTHS FOR THE MONTH OF JANUARY, 1928.

	Male	Female	Total
White	36	40	76
Mexican	82	85	167
Black	1	1	1
Others	1	0	1
Total	120	126	246

DEATHS FOR THE MONTH OF JANUARY, 1928.

	Male	Female	Total
White	35	18	35
Mexican	54	42	96
Black	1	1	2
Others	1	0	1
Total	91	61	152

THE HEALTH DEPARTMENT reports the following births and deaths for February:

BIRTHS FOR MONTH OF FEBRUARY, 1928

	Male	Female	Total
White	31	33	64
Mexican	83	80	163
Colored	2	0	2
Others	2	2	4
Total	118	115	233

DEATHS FOR MONTH OF FEBRUARY, 1928

	Male	Female	Total
White	34	30	64
Mexican	46	57	103
Colored	4	1	5
Others	1	0	1
Total	85	88	173

The measles epidemic created a serious situation in the month of March. On this account, together with quite a large amount of la grippe, the total deaths amounted to 230 which is the largest mortality in over five years. Forty-two deaths alone were reported from measles. On April 1, there were still 157 cases of measles in quarantine, against 195 the first of March; 702 cases were reported in March against 430 in February; and also 42 against 16 deaths from measles. Sixty-three cases of mumps were on hand April 1, 77 cases of scarlet fever and 28 cases of chicken pox. No deaths from scarlet fever occurred in March.

ARIZONA AND NEW MEXICO NEWS

DR. W. V. WHITMORE, of Tucson, Ariz., has been given a Community Service citation for his service to the state university in its early days, when it was laying its foundation for its present greatness. Dr. Whitmore has served several times on the Board of Regents of the University.

THE ARIZONA STATE BOARD OF HEALTH will hold a public health and sanitary conference on April 17 and 18, at the University of Arizona, at which leading public health officials of the southwest will discuss various phases of public health.

SMALLPOX IN ARIZONA—The situation with regard to smallpox in Arizona has been gotten under control by the activity of the various health officials. Under the state law, vaccination cannot be made compulsory, but with the cooperation of the school officials and physicians, free vaccination was offered in almost every county and the general acceptance of this has enabled control of the contagion to be secured. Along the border, this was helped by the Mexican authorities who would allow no one to cross the line into Mexico unless they could show proof of successful vaccination. Several schools were closed in Cochise county and elsewhere. In Douglas, more than two thousand people were vaccinated in one day. In Mesa (Mar-

(icopa county), free vaccination was given by Dr. R. F. Palmer to the school children.

DR. H. I. McNEILL, health officer of Mesa, has been ill for several weeks and Dr. F. W. BROWN has been serving in his stead.

DR. J. H. WOOLEY, formerly connected with the Nacozari Hospital, Nacozari, Mexico, is now a resident of Tucson, Ariz.

DR. GEORGE M. DUNNE, of Douglas, Ariz., has resigned from the staff of the Copper Queen, to take effect May 1st.

DR. S. L. BURTON, of Albuquerque, N.M., has created comment in his community by his criticism of the habit of the New Mexico metropolis of advertising itself as a health center, to the overshadowing of the other advantages of that city.

DR. and MRS. W. A. GEKLER have returned from New Orleans, where they attended the meeting of the College of Physicians, afterwards visiting in Baton Rouge, La., the former home of Mrs. Gekler.

DR. VERNON KENNEDY, of Phoenix, Ariz., has returned to his work in association with Dr. Geo. Goodrich. Dr. Kennedy went to the coast several months ago, after recovering from his operation for ruptured gastric ulcer. He has been doing special work in urology under Dr. MacGowan for several months.

DR. JOHN E. BACON, of Miami, Ariz., was a visitor in Phoenix on April 2nd, when the Cubs and Pirates played their exhibition game.

VACCINATION AGAINST TUBERCULOSIS:—Dr. William H. Park, Director, Bureau of Laboratories, Department of Health, New York City, reports in Child Health Bulletin for March, gives a preliminary report on their initial work with

the Calmette vaccine against tuberculosis in infants. Two groups of babies were taken from tuberculous families and kept under identical conditions. Fifty babies were given the treatment with about twice as many as controls. Of the fifty treated none developed tuberculosis, though four died from other causes. In the control group seven per cent have already died from tuberculosis. The vaccination apparently is harmless and the results are encouraging. Dr. Park thinks they are justified in making more extensive tests. (Weekly Bulletin of New Mexico Bureau of Health).

NEW MEXICO STATE HEALTH LABORATORY:—During the year 1927, the State Public Health Laboratory, in charge of Miss A. Greenfield, made a total of 7,310 examinations (Weekly Bulletin, March 27). Among the principal items were 1090 cultures for diphtheria, 1315 stool examinations for typhoid, 1799 blood tests for syphilis, 1057 specimens of water. The cost of the laboratory to the state was about \$7,000. During the year the laboratory began the examinations for Malta fever, and this will be a routine procedure during 1928, whenever the specimens sent are suitable.

MEASLES IN INSTITUTIONS (Dr. E. S. Godfrey, Jr.):—In The Journal of Preventive Medicine for January, 1928, Dr. Edward S. Godfrey, Jr., Director, Division of Communicable Diseases, New York Department of Health, presents two studies on measles, Part II being devoted to report on the use of convalescent serum in the years 1923-24. His experience in the use of this serum was not highly encouraging, and his opinion is that "convalescent serum will favorably influence the mortality if administered during the

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Charles W. Thompson,
M. D., F. A. C. P.,
Medical Director

incubation period, but that it is inadequate under exceptionally adverse conditions, at least in the dosage available in our experience." Dr. Godfrey writes in "The Nation's Health" on the same subject, December, 1927, issue.

Dr. Godfrey will be recalled by his many friends in the southwest, as the first, last and (as yet) only full time state superintendent of health for Arizona, serving in this capacity during the years immediately preceding statehood.

DR. W. W. HORST, of Globe, Ariz., announces his removal to Wilmington, Calif., where he will be engaged in practice in the future. His office will be at 802 Evalon Blvd., Wilmington, Calif.

DR. JAMES R. SCOTT, one time health officer of Bernalillo County, New Mexico, and lately city health officer of Berkeley, Calif., has returned to his old position in Albuquerque, where he is being warmly welcomed by his host of friends in that state. He returns to his old post with his usual enthusiasm. It may not have been due entirely to Dr. Scott's services in that city, but it is worth recording that, in 1926, Berkeley had the lowest infant mortality of any city its size in the birth registration area.

CHICAGO'S GREATEST RADIOLOGICAL CONVENTION

The Radiological Society of North America will hold its 14th Annual Convention in Chicago, December 3rd to 7th, inclusive, 1928. The Drake Hotel, Lake Shore Drive and North Michigan Avenue has been selected as the headquarters. We are assured of ample accommodations and exceptionally reasonable rates and of the best and most efficient service.

Make your plans for this year include Chicago's greatest Radiological Convention. Every physician who is interested in this branch of diagnosis and therapy is welcome.

There are no registration fees, no additional expense. Plans are under way now to secure reduced transportation rates.

The Ladies' Local Reception Committee is making plans for the entertainment of all visiting ladies. These plans include theater parties, luncheons, shopping tours and sight-seeing trips, with generous hospitality extended to all visitors.

Much attention is being given to arranging for scientific and commercial exhibits. These exhibits will afford a post graduate course of instruction in nearly every branch of medical science. Clinics covering Radiological problems as well as other branches of medicine will be given every day during the session. We are assured by the program committee of an instructive and interesting scientific session and a program upon which will appear representative men from all sections of this country and Europe.

Start to make your plans to attend now. This means you. Many papers on General Diagnosis and Therapy will be read and discussed during the Scientific Session.

Bring the wife and family to Chicago, the hub of the United States, with theaters, parks, boulevards and shopping districts second to none.

The location of our headquarters at the Drake Hotel will be found especially convenient. Therefore, make your plans to attend this meeting now. You cannot afford to miss this fourteenth annual session of the Radiological Society in Chicago.

Reservations should be made early. Communicate with Chairman of Hotels and Lodgings committee, T. J. Ronayne, M. D., West Suburban Hospital, Chicago, Illinois, or direct with Drake Hotel, Chicago Ill.

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APRIL, 1928

AMERICAN MEDICAL EDITORS' ASSOCIATION

With the death of the last President, Dr. Henry O. Marcy, the American Medical Editors' Association became inactive and remained so for five years. At the time of Dr. Marcy's death, one hundred and seventeen editors were on the roster.

Early in January, 1928, the present President, Dr. H. Lyons Hunt, called a meeting of a few of the New York editors to discuss the advisability of re-viving the Association. The vote of those present was unanimous that this should be done.

That a need was felt for the Organization, can best be demonstrated by the fact that not only practically all members of the old Association came in, but over one hundred new members made application, so that today the American Medical Editors' Association is stronger and more powerful than it has been in its entire history.

As the organization swung into power, numerous meetings were held, officers elected and committees appointed to study and promulgate a tentative platform representative of the American Medical Editor's Association. Just how the entire Association will stand on these subjects, will largely depend on the information gleaned on each by the committees appointed.

That the Association is functioning with enormous activity, is shown by the fact that committees have been appointed to study and advocate a stand for the Association on the following subjects: "MEDICAL JOURNAL ENDOWMENT FUND." (This is a rather new idea but there seems no reason why medical schools and hospitals should receive endowments while medical journals and those who run them, often at considerable sacrifice, should not look to share in a central endowment fund. Certainly the medical journals constitute one of the greatest forms of medical instruction and teaching in the country and through the profession are of untold value to the health of the nation.)

Committees have been formed to study ways and means of "Standardizing Medical Education" and "Standardizing Medical Licensing Examinations." "Bringing About International Medical Reciprocity." (Four committees, one in Canada, one in the states, one in England and one in France have already been appointed to study this subject.)

Committees to study Workman's Compensation, "Pay Clinics," "Commercial Laboratories," "Open Hospitals," "Medical Compensation," "Drug Store Prescribing," "Pharmacy and Therapeutic Products," "Electrotherapeutic Apparatus," "Prohibition."

Committees on "Legislation," "Advertising," "Publicity," "Policy," "Public Health," "Medical Economics" and so on, all studying certain questions and working out solutions for the problems involved, for the advancement and elevation of the medical profession and of medical journalism.

April has been designated as "Industrial Month" by the Abbott Laboratories. During this period a survey of the principal industries in various sections of the country will be made to determine to what extent the following Abbott and D.R.L. items are being used in industrial medicine:

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SOUTHWESTERN MEDICINE

Volume XII.

MAY, 1928

OFFICIAL ORGAN
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ARIZONA STATE MEDICAL ASSOCIATION
EL PASO COUNTY (TEXAS) MEDICAL SOCIETY
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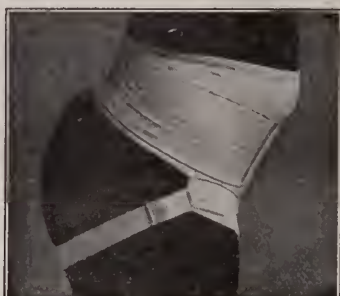
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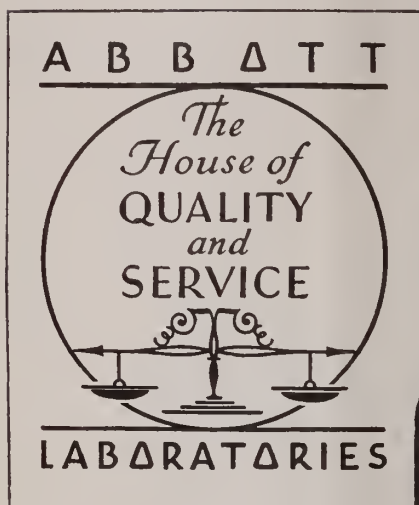
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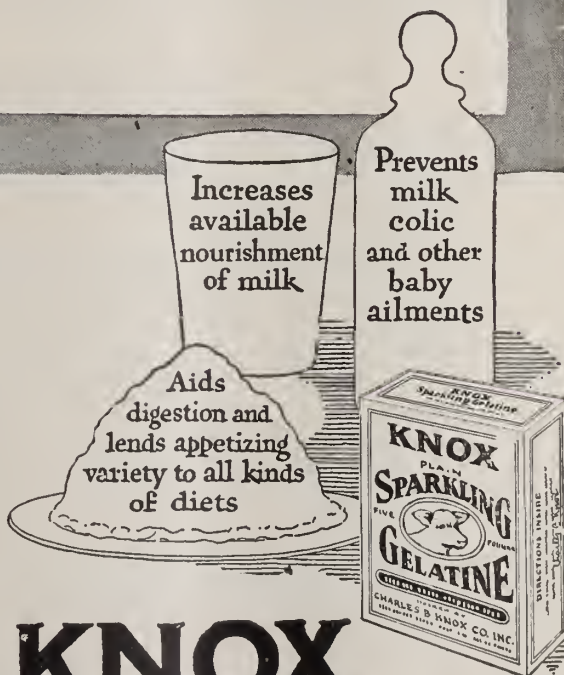
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SYSTEMATIZED TREATMENT OF UTERINE PROLAPSE

H. S. CROSSEN, M. D.
St. Louis, Mo.

Read at the Clinical Congress of the Medical and Surgical Association of the Southwest, El Paso, Texas, November 25, 1927.

The conditions in prolapse of the uterus differ so much in different individuals that it is necessary to make a careful classification of cases as they come for treatment, if each patient is to be given the best service.

Passing by the minor degrees of prolapse, in which the symptoms may be sufficiently

relieved by pessary and postural treatment, and passing by the inoperable patients presenting serious extrapelvic diseases, we come to the operable class of cases, which is the class now under consideration. In these cases the prolapse of the uterus and bladder and the resulting disability are such as to require radical measures, and the patient is a fair operative risk.

What type of operation should be chosen? The effectiveness of the treatment for the patient, the measure of relief from her disability and her subsequent state of health, depend largely on the answer to this im-

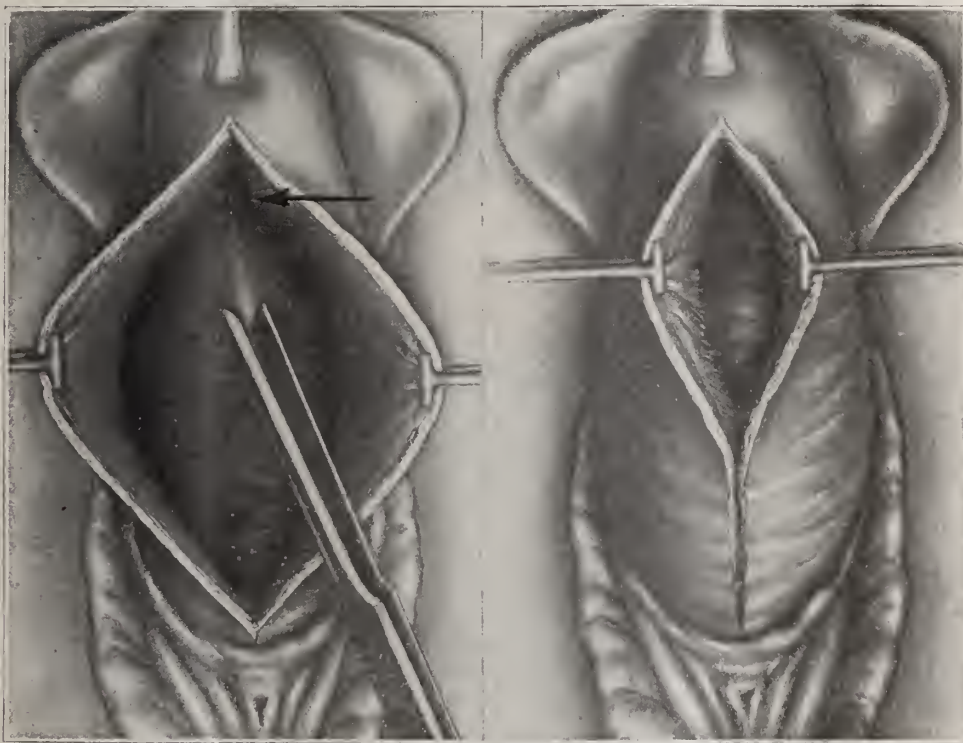


Fig. 1.

Fig. 2.

Fig. 1. Subvesical interposition of corpus uteri. Incision of the anterior vaginal wall. Both the vaginal wall and attached utero-pubic fascia have been divided in the posterior part of the incision, exposing the bladder wall in the bottom of the wound.

Fig. 2. The vaginal wall and fascia separated from the bladder well out to each side. The arrow indicates the group of fibers called the uterovesical ligament, which must be divided before the bladder can be freely pushed off by gauze dissection.

portant question. The answering involves a careful study of the local conditions and of the general conditions in each patient, and the selection of the type of operation most suitable for those conditions. An operation that gives an excellent result in one patient may be entirely unsuitable for the next patient because of differing conditions. In solving the problem of choosing the best treatment for each patient I have found it

convenient to group these patients into four classes.

I. Past menopause; uterus about normal.

A large proportion of the patients with marked uterine prolapse are past the menopause. The possibility of future pregnancy is eliminated and, consequently, the problem of operative cure is simplified. In the operation for such a patient, as no provision need be made for future childbearing, the uterus may be removed or it may be preserved and



Fig. 3. The separation of the bladder from the vaginal wall-fascia completed. Beginning the separation of the bladder from the uterus. The gauze-covered finger is rolling off the bladder from the cervix.



Fig. 4. The peritoneal pouch opened.

utilized in the closure of the hernial opening.

In planning the operation for this class of patients there are also certain other features that must be kept in mind, as follows:

1. The prolapse or hernia of the bladder is usually a prominent feature and a very troublesome one. It was this bladder prolapse that so often recurred under the older forms of operative treatment.

2. The tissues at the pelvic outlet lack

the tone and strength of earlier life. They stretch more easily, and hence recurrence is frequent when reliance is placed simply on tissue-approximation. The bladder and under-bladder conditions in these patients are particularly conducive to restretching of the tissues and recurrence of the bladder prolapse.

3. These aged patients lack the reserve strength required for long or extensive operations. Though the patient may be in



Fig. 5. Bringing down the fundus uteri. The first forceps applied and being drawn downward. Each forceps is numbered as applied, that its change in position may be followed as the fundus uteri is gradually brought down.



Fig. 6. Bringing down the fundus uteri. The third forceps applied and drawn downward, bringing the fundus outside.

good general health for a person of that age, the margin of reserve strength with respect to the heart and the kidneys and the metabolic adjustments, is becoming lim-

ited. Consequently, the operative strain should be held to the minimum.

In these patients past the menopause and with the uterus about normal, experience

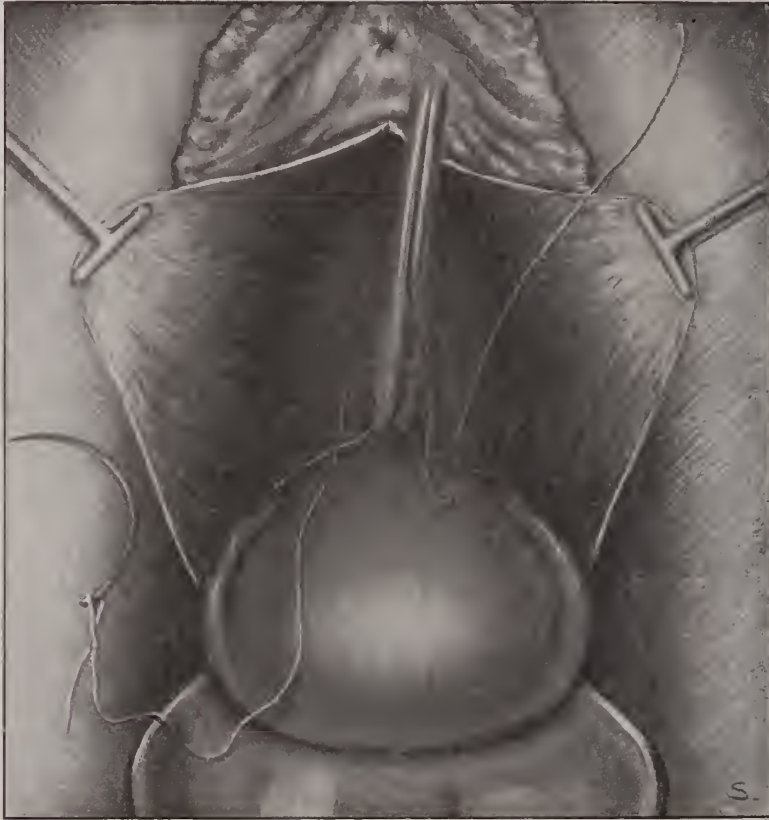


Fig. 7. Fastening the vesical peritoneum to the posterior surface of the uterus at about the level of the internal os.



Fig. 8. The special fixation-sutures tied. Beginning to close over the vaginal flaps.

has shown that the interposition operation is the preferable type. In this operation the prolapsed bladder is separated from the vaginal wall and uterus and then the corpus uteri is brought down under the raised bladder and fastened there. The advantages of this operation are: (a) that it utilizes the corpus uteri as a protective covering over the weak place in the pelvic floor (the vag-

floor repair, in addition to the other work. This repair of the pelvic floor must make good approximation of the sides of the levator sling, as shown in Figs. 10 to 15.

II. Past Menopause; uterus diseased.

The uterus may have a bad cervix, causing discharge and chronic irritation, and making its retention a menace. The corpus uteri may present marked subinvolution

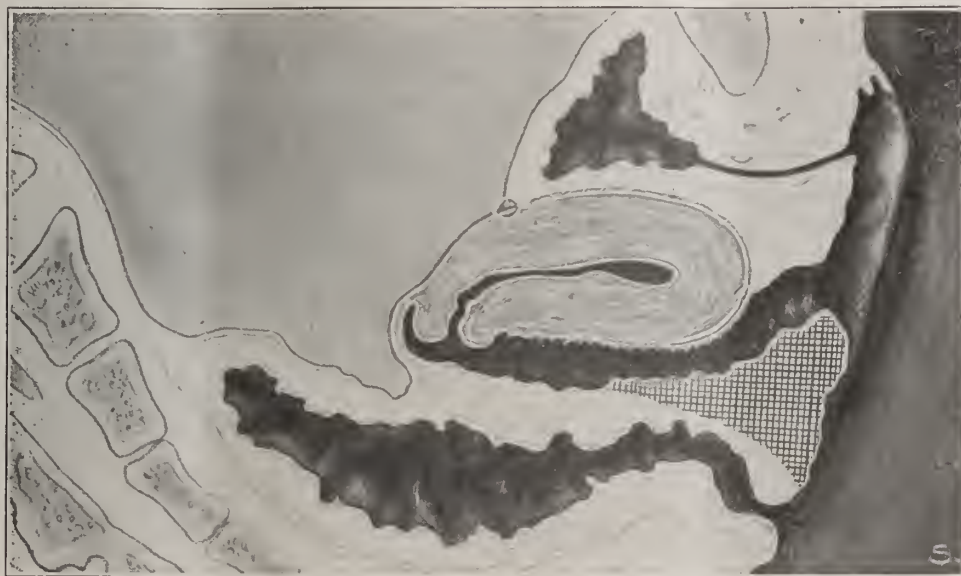


Fig. 9. Sectional view, showing the relations of the uterus after completion of the operation. Pelvic floor repair, indicated by the lined area, is an essential part of the operation.

inal opening); (b) that it reduces the operative strain by requiring only a minimum of time and tissue-disturbance; and (c) that it does not interfere with subsequent normal married relations. The steps in this operation are shown in detail in Figs. 1 to 9.

In all cases of prolapse the lower plane must, of course, be strengthened by pelvic-

with bleeding tendency or myoma nodules or conditions suspicious of carcinoma. In all these conditions, vaginal hysterectomy is advisable providing there is no condition necessitating abdominal work. Vaginal hysterectomy in properly selected cases, carries decidedly less operative strain to the patient than abdominal hysterectomy.



Fig. 10.

Fig. 11.

Fig. 10. Repair of pelvic floor. The levator sling surface caught with forceps and brought out, for better identification and more accurate passing of the sutures.

Fig. 11. The first approximation suture passed. It is well to make two rounds with the suture before tying.

Hysterectomy alone, however, is not sufficient, but must be accompanied with special measures to restore the pelvic supporting planes. The pelvic supports consist of two musculo-fibrous planes, one above the vagina and one below. These planes overlap each other, the strong part of one protecting the weak area in the other. The vaginal canal lies between the planes. Under

plane (the vaginal outlet) must be protected by strengthening that portion of the upper plane immediately above it. In the interposition operation of the preceding class, this was easily accomplished by fastening the corpus uteri securely in this situation. But in the class now under consideration the uterus must be removed; hence, other tissues must be found to give strength to this

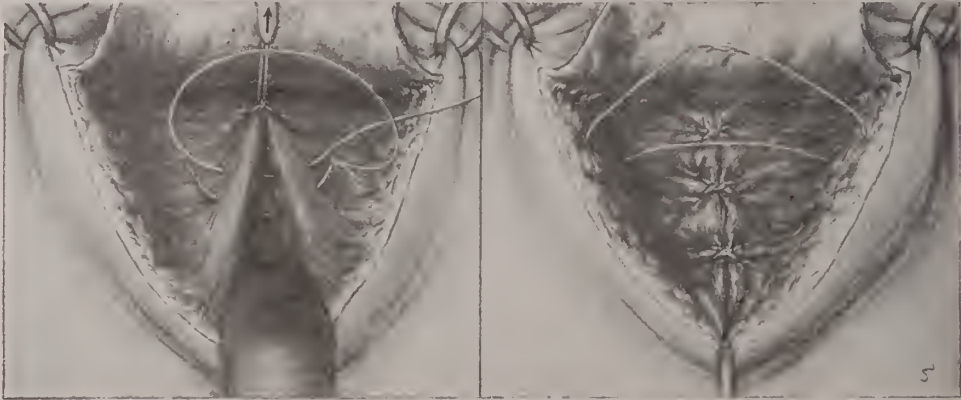


Fig. 12.

Fig. 12. Placing the lower sutures in the sling. Traction on the first suture causes the lower tissues to stand out so that they can be easily picked up with the suture, as here shown.

Fig. 13.

Fig. 13. The sling sutured, and more superficial sutures being passed.

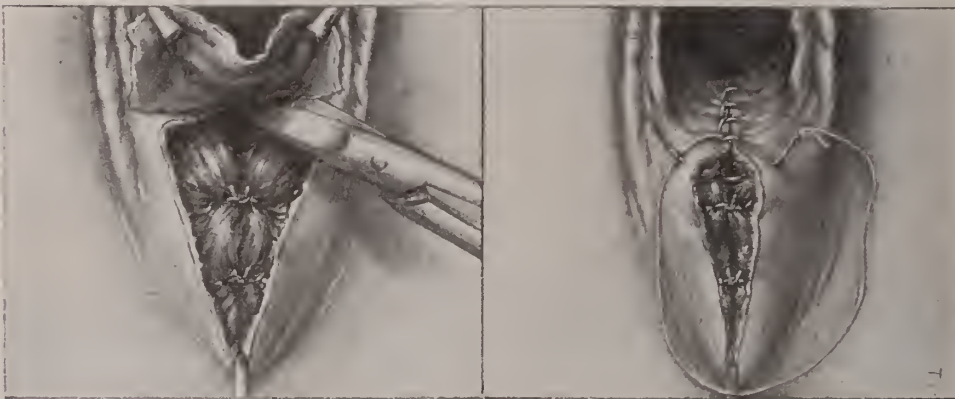


Fig. 14

Fig. 14. Trimming off the excess of vaginal wall.

Fig. 15

Fig. 15. The vaginal portions of the wound closed, and the perineal portion being sutured.

normal conditions any increase in intra-abdominal pressure tends to approximate the planes and close the canal. This arrangement is necessary in order to give required support at the pelvic outlet and at the same time provide for the genital canal and the reproductive function.

In the operation for prolapse of the uterus and bladder and overlying structures, these two supporting planes must be restored, and the necessarily weak place in the lower

anterior portion of the upper pelvic diaphragm. Normally this area is closed by the base of the bladder and the underlying fascia extending from the pubic bone back to the cervix uteri. In prolapse of the uterus and bladder, these structures have been so stretched and attenuated that they can not be relied upon alone to furnish the strong support necessary. They must be supplemented in some way and the tissues usually most available for this purpose are the

round ligaments and the attached portions of the broad ligaments. Both the round ligaments and the broad ligaments are found much lengthened in prolapse cases and hence

may be brought forward under the base of the bladder and attached to tissues that take firm hold of the pubic arch, as indicated in Figs. 16 to 19.

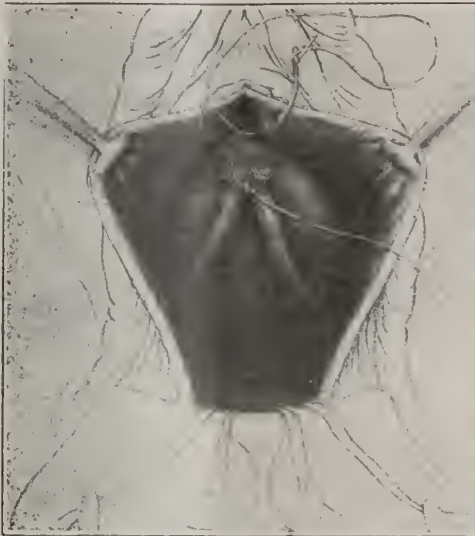


Fig. 16.



Fig. 17.

Fig. 16. Vaginal hysterectomy for prolapse. Uterus is out and tissues are being brought together to form supports under the bladder. The round ligaments, which were held by forceps, have been ligated and are being fastened to the fascia under the pubic arch.

Fig. 17. The round ligaments have been sutured together under the bladder. The left utero-sacral ligament is being shortened by the left lower pedicle-ligature which has been left long and with needle attached for that purpose.



Fig. 18.

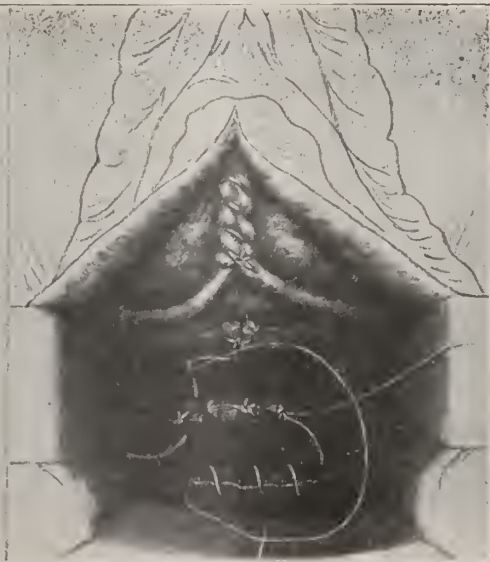


Fig. 19.

Fig. 18. Both utero-sacral ligaments have been shortened and the peritoneal opening is being closed by one of the same sutures.

Fig. 19. With the same suture the raw edge of the vaginal vault is being caught up, to prevent bleeding.

III. Past menopause; complications requiring abdominal work.

In addition to the prolapse of uterus and bladder, there is some condition that can not be satisfactorily taken care of by the

vaginal route. It may be a myoma too large to be removed from below, an adnexal inflammatory mass, or an ovarian tumor, a chronic appendicitis, some intestinal complication, or an obscure condition requiring



Fig. 20.



Fig. 21

Fig. 20. Ventro-Fixation (Leopold technique.) The fixation sutures are passed directly through the fundus uteri. They should be passed through the posterior surface of the fundus.

Fig. 21. It is well to scarify the uterine surface freely, and also to draw aside the peritoneum as indicated here, so that the uterus is fastened directly to the fascial layers of the abdominal wall.



Fig. 22.



Fig. 23.

Fig. 22. Supravaginal hysterectomy for prolapse. Fastening the pedicles to the cervical stump and taking up the slack. All the pedicles have been ligated and the suture has been passed for bringing the pedicles of the uterine vessels and the round-ligament pedicles of the left side into the cervical stump.

Fig. 23. The left round-ligament pedicle has been approximated to the cervical stump and the suture is in place for bringing down the round ligament pedicle of the right side.

exploration. All conditions present must be ascertained before deciding on the kind of operation, and if there is any complication

requiring abdominal work or exploration, that route must be chosen.

After the abdomen has been opened and



Fig. 24.

Fig. 25.

Fig. 26.

Figs. 24, 25 and 26. Further steps by which the round ligament and adnexal pedicles are fastened securely to the cervical stump.

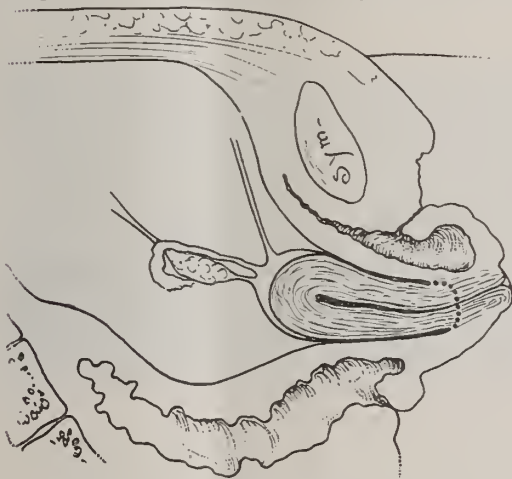


Fig. 27.

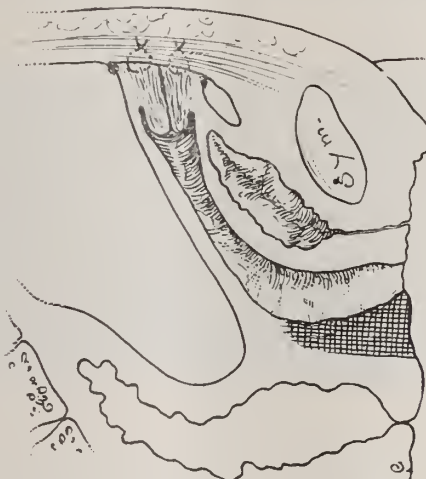


Fig. 28.

Fig. 27. Supravaginal hysterectomy with fixation of the cervix to the abdominal wall. The upper part of the uterus is amputated at the dotted line.

Fig. 28. The cervical stump sutured to the abdominal wall. The checked area indicates the pelvic floor repair, which is an essential part of every prolapse operation.

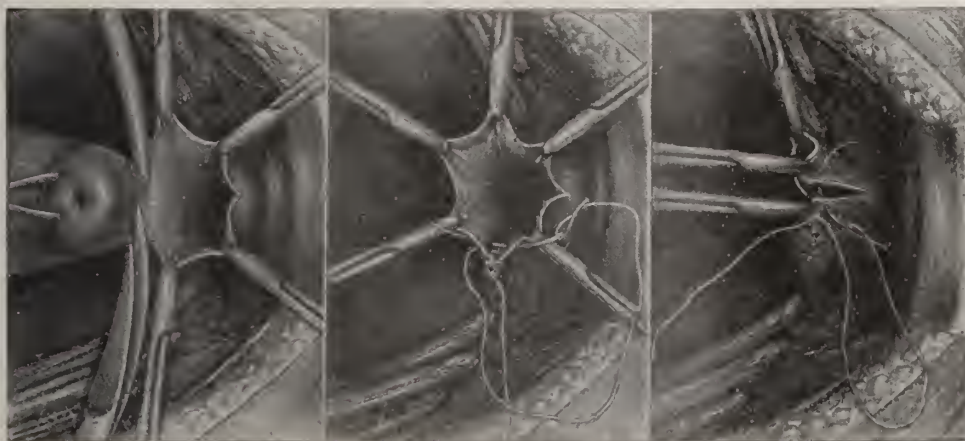


Fig. 29.

Fig. 30.

Fig. 31.

Fig. 29. Complete hysterectomy, with fastening of the vaginal stump to the pelvic pedicles. Dividing the last portion of the vaginal wall back of the cervix.

Fig. 30. The uterus removed and the vaginal wall caught all around with forceps. Beginning to close the vaginal vault, starting with the right side.

Fig. 31. The right side of the vault closed and the closure of the longitudinal incision started.

the complications have been taken care of, then comes the selection of the operative technic for holding up the prolapsed uterus and bladder. The type of operation to be used depends, of course, on the particular conditions found. It must be kept in mind, also, that we are dealing with rather aged patients who have lost the wide reserve strength of earlier years, consequently, the intra-abdominal operative work should be limited in time and tissue-disturbance as far as circumstances will permit. If the uterus is normal it may be held up by firm fixation of the fundus to the abdominal wall—providing the abdominal wall possesses the normal tone. If the abdominal wall is lax and atonic, fastening the uterus to it will do no good, for the lax wall will permit the attached uterus to return to its old position

ly carried out as shown in Figs. 22 to 26, with good result. If necessary, the cervical stump may be fixed to the abdominal wall, as shown in Figs. 27 and 28.

If the cervix also is diseased, a complete hysterectomy is then necessary, with high fixation of the vaginal stump to the shortened pelvic pedicles, as indicated in Figs. 29 to 34. In an exceptional case the vaginal vault may have to be fixed to the abdominal wall.

In all cases of prolapse the lower plane must, of course, be strengthened by pelvic floor repair, in addition to the other work already mentioned.

In regard to the subvesical tissues of the upper pelvic plane, they are usually put on sufficient tension by the high fixation of the cervical stump so that repair of the low-



Fig. 32.

Fig. 32. Bringing down the pedicles to the vaginal vault. The first step.

Fig. 33.

Fig. 33. Pedicles on left side sutured securely to the vaginal vault, and the suture in place for bringing down the pedicles on the right side.

Fig. 34.

Fig. 34. Both pedicles sutured to the vaginal vault. Taking up the slack in the round ligaments in order to hold the vaginal vault well up and prevent shortening of the vagina.

of retrodisplacement and prolapse. I recall one such case. The patient had been operated on by another surgeon for retrodisplacement and, after recovery from the operation, I was asked to see her because of the persistence of the distressing symptoms. Fixation of the fundus uteri to the abdominal wall was the type of operation which had been employed. I found the fundus was still attached securely to the abdominal wall, but the wall was so lax that it allowed the attached fundus to sink back to its old position of marked retrodisplacement. This failure of operation would have been prevented by a careful selection of the type of operation according to conditions found. A very satisfactory technic for fixing the fundus uteri to the abdominal wall is shown in Figs. 20 and 21.

If the corpus uteri is diseased and the cervix normal, a supravaginal hysterectomy with high fixation of the cervical stump to the shortened pelvic pedicles may be quick-

er plane (pelvic floor) is all that is necessary below. However, if when beginning the work below, it is found that the tissues under the base of the bladder are still very lax, this portion of the upper plane should be further strengthened by the regular subvesical repair shown later.

IV. In Childbearing Period.

When provision must be made for subsequent childbearing, the cure of the prolapse of the uterus and bladder becomes a decidedly more difficult task. No method is permissible that would interfere with pregnancy or labor. This eliminates at once the simple and effective interposition operation. The bladder and heavy uterus must be held in place by ligament-shortening and by plastic work on the upper and lower pelvic plane, which means a combination abdominal and vaginal operation in most cases. (Figs. 35 and 36.) However, in these cases necessarily requiring such extensive work there are some compensating features. In

the first place, the patients at this age still retain their normal margin of reserve vitality and hence are able to go safely through the more extensive operation required. Again, the tissues locally have more tone and strength and hence the extensive plastic work, upon which dependence must be placed, is more likely to stand the subsequent strain without undue stretching.

Moderate degrees of prolapse of the uterus and bladder in the child-bearing period may usually be best handled by an operation comprising three steps, as follows:

1. Abdominal operation for transplantation of the round ligaments into the abdominal wall (Figs. 37 to 40) or other effective shortening of the round ligaments as best suited to special conditions found.

2. Repair of the pubo-uterine fascial plane under the bladder, as shown in Figs. 41 to 43.

3. Strong repair of the pelvic floor. (Figs. 10 to 15.)

In extreme degrees of prolapse with marked attenuation of the utero-sacral liga-



Fig. 35.



Fig. 36.

Fig. 35. A general view of the conditions to be corrected—relaxed pelvic floor, prolapse of the uterus and bladder, diseased right adnexa, and irritable appendix.

Fig. 36. The sites of operative work, indicating the structures involved in the work in this case. These are, in order, the utero-sacral ligaments, the right tube and ovary, the round ligaments, the appendix, the utero-pubic fascia and the pelvic floor.

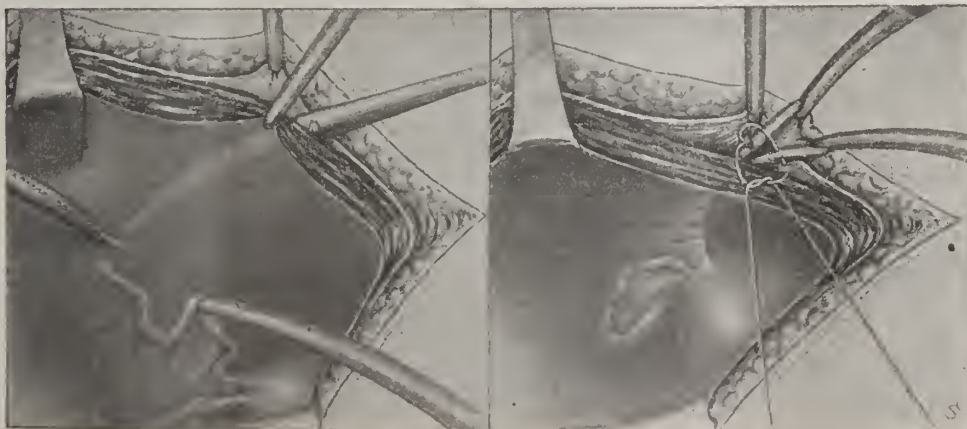


Fig. 37.

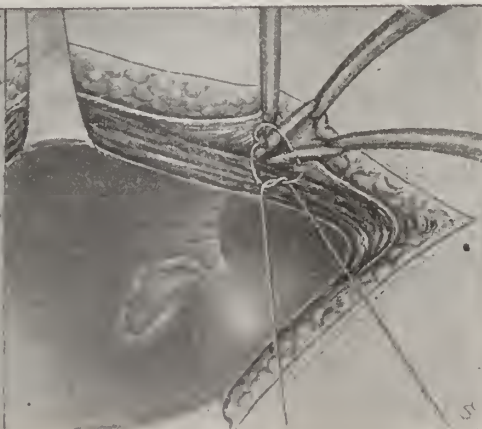


Fig. 38.

Fig. 37. Transplantation of the round ligaments into the abdominal wall (Crosen-Gilliam technique). Executing the operation with an ordinary pedicle clamp. The marker forceps, grasping the peritoneum at the site of intended puncture of the peritoneum, is very helpful in the accurate execution of the work by touch.

Fig. 38. Suturing each limb of the ligament-loop securely to the under surface of the aponeurosis. Chromic catgut (forty day, No. 2) is used for this purpose.

ments, it is advisable to add a fourth step:

4. Shortening of the uterosacral tissues.
- This is carried out as the first step in the

abdominal work in the cases requiring it. The details of shortening the utero-sacral ligaments are shown in Figs. 44 to 51.

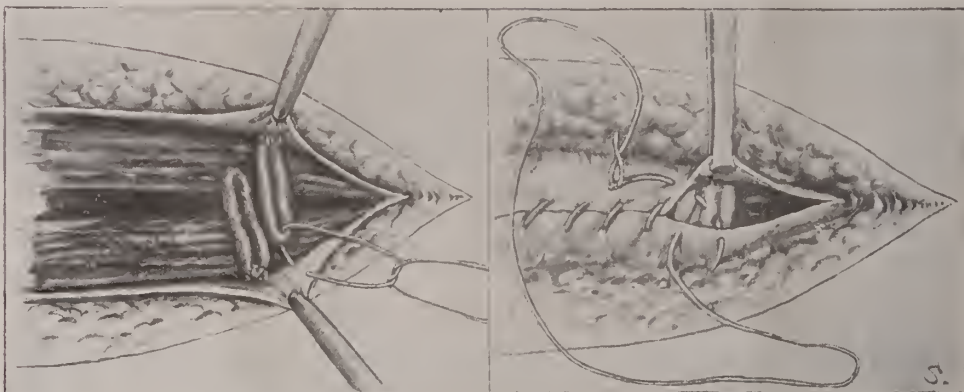


Fig. 39.

Fig. 40.

Fig. 39. Where the ligament loop is long enough after suturing to the aponeurosis that side, it is well to suture the tip to the aponeurosis of the opposite side, as here indicated.

Fig. 40. Where the excess ligament-loops are too short to be fastened securely across the median line, they may be caught in the aponeurotic closing suture as here indicated.

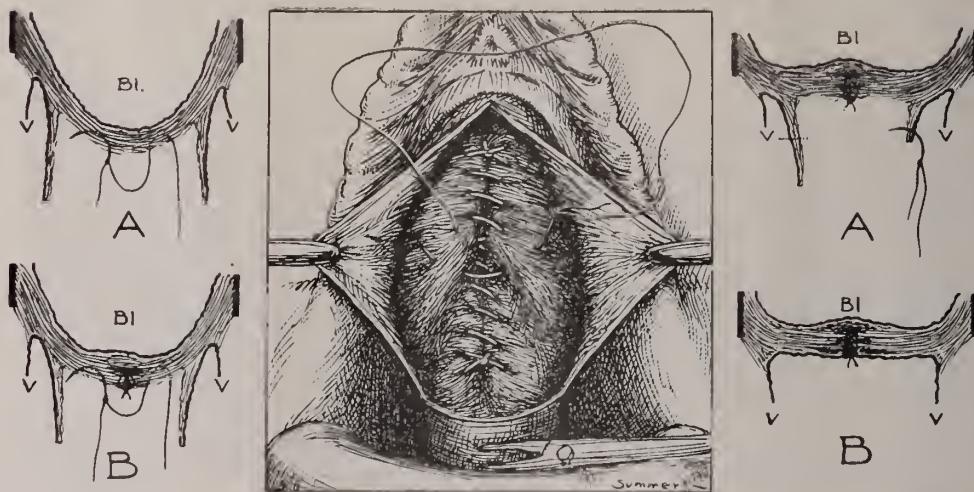


Fig. 41.

Fig. 42.

Fig. 43.

Fig. 41. Repair of the utero-pubic fascial plane per vaginam. A. Vaginal wall reflected and first row of buried sutures being introduced. B. Two rows of buried sutures completed and the third being introduced.

Fig. 42. Taking up the slack in the utero-pubic fascia by rows of buried sutures.

Fig. 43. A. Introducing the suture for closing over the vaginal wall. B. The repair of the utero-pubic fascia completed.

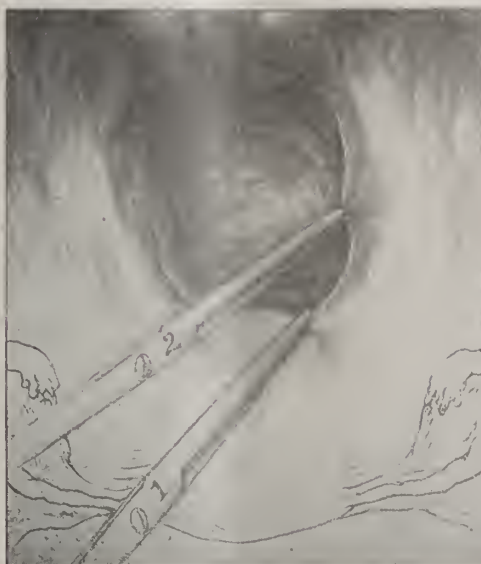


Fig. 44.

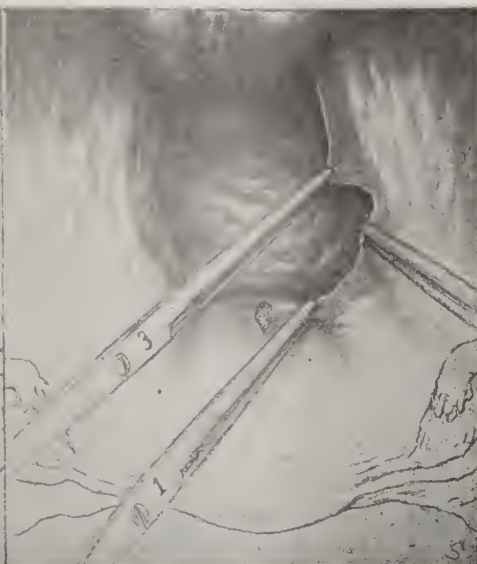


Fig. 45.

Fig. 44. Shortening the utero-sacral ligaments (Young technique.) The second forceps in place, drawing out the lateral tissue of the culdesac area.

Fig. 45. The third forceps in place, drawing out the tissues extending around the rectum and taking hold of the sacrum.



Fig. 46.

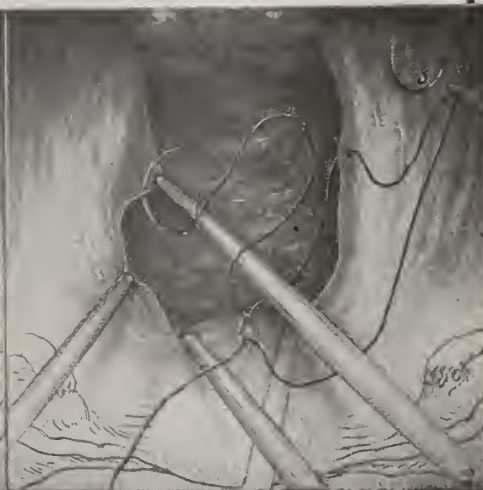


Fig. 47.

Fig. 46. The incision made on the posterior surface of the cervix uteri and the first suture passed.

Fig. 47. The suture on the opposite side passed.

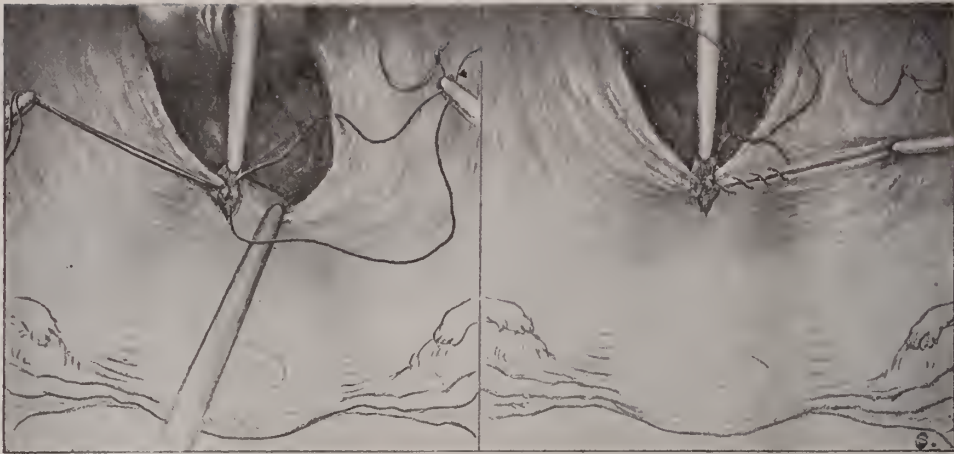


Fig. 48.

Fig. 48. The right ligament entirely sutured.

Fig. 49.

Fig. 49. The left utero-sacral tissues shortened, and the excess loop being sutured.

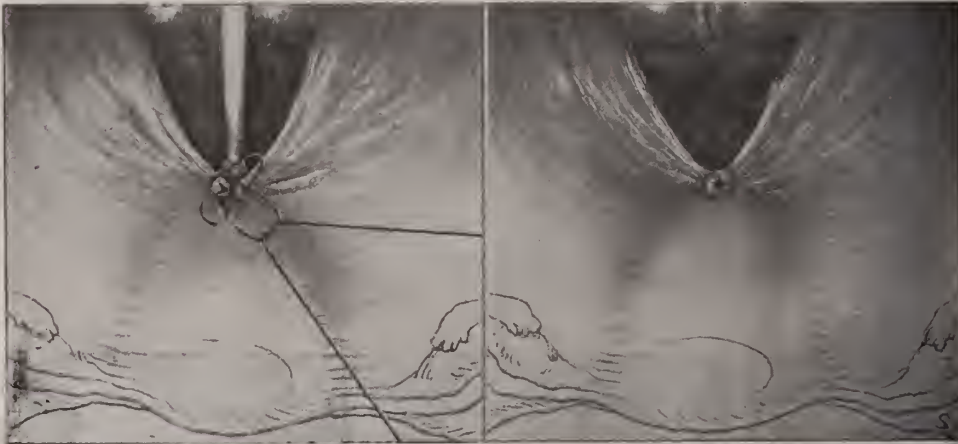


Fig. 50.

Fig. 50. Shortening of utero-sacral tissues finished on both sides, and the area being covered with peritoneum.

Fig. 51.

Fig. 51. Operation completed.

OPERATIVE CLINIC VAGINAL HYSTERECTOMY FOR PROLAPSE

H. S. CROSSEN, M. D.
St. Louis, Mo.

(Held at Masonic Hospital, El Paso, Texas, Nov. 4, 1927, during Clinical Congress of the Medical and Surgical Association of the Southwest.)

This patient has a marked prolapse of the uterus and bladder, both organs coming outside, as you can see, and there is the usual relaxation of the pelvic floor. As to the preferable operative method, the patient is past the menopause and hence the interposition operation would be the operation of choice if the uterus were in good condition. However, the uterus is not in good condition. There is an ulcer on the exposed cervix, with extensive chronic infiltration around it. There is no suspicion of malignancy at present, but the evident chronic inflammatory irritation extends so deeply into the uterus that hysterectomy is necessary to insure its removal. The corpus uteri is small enough to permit its removal from below, and there is no indication of adnexal or appendiceal, or other disease, requiring abdominal incision.

Consequently, the best plan of procedure in this case is to remove the uterus by vaginal hysterectomy and follow this with plastic work to restore the upper and lower planes of pelvic support. The operative work may be divided into the following steps:

1. Closure of cervix.
2. Separation of bladder from uterus.
3. Separation of rectum from uterus.
4. Excision of uterus.
5. Fastening round ligaments under bladder.
6. Suture-ligation of pedicles.
7. Shortening of utero-sacral tissues.
8. Closure of culdesac about drain.
9. Re-enforcing hemostasis.
10. Closing vaginal incision.
11. Repair of pelvic floor.

1. **Closure of cervix:** After the usual surgical preparation of the vagina and adjacent surfaces, the uterine canal is packed with a small strip of gauze soaked in picric or iodine solution and the cervix is closed by suture (Fig. 1). In this case the ulcer area is included in the disinfection and closure. The cervix is then grasped securely with a heavy forceps, by which steady traction is to be made. (Fig. 2.)

2. **Separation of bladder from uterus:** A trans-

verse cut is made across the anterior surface of the cervix, and the vaginal wall is separated from the bladder by introducing the scissors-point a short distance (Fig. 2) and then opening the blades (Fig. 3). This process of introducing the scissors a short distance then separating the blades, is continued rapidly until the separation of the vaginal wall from the bladder is complete in the median line, the separated portion being divided as found convenient (Fig. 4). The separation of the vaginal wall from the bladder is then continued laterally on each side by gauze dissection (Fig. 5), and the gauze dissection is continued around the bladder until it separates from the uterus slightly on each side.

The bladder wall may then be picked up so as to identify the vesico-uterine ligament (Fig. 6),

which usually must be cut. The bladder may then be pushed up off the uterus, the separation being preferably accomplished by gauze dissection at the lower part (Fig. 7) and by the gloved finger at the upper part. There is a plane of cleavage between the bladder and uterus which, if found and followed, simplifies the work. If the operator, in anxiety to avoid injury to the bladder, inadvertently works in too close to the uterine wall, there will be difficulty and delay. The line of cleavage is best found by separating the bladder lightly, first by gauze and higher simply by the gloved finger.

When the bladder has been pushed high enough, it is lifted by a retractor and the vesico-uterine peritoneal pouch is identified and opened. Difficulty is sometimes experienced in identifying this peritoneal fold. Sometimes it may be recognized by a

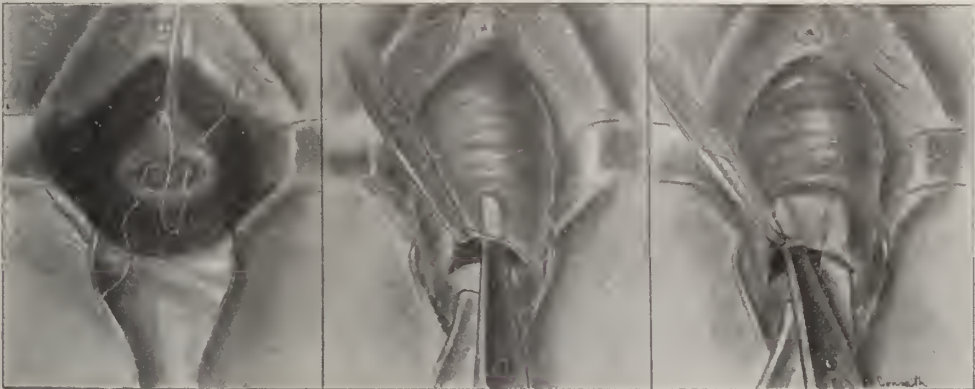


Fig. 1.

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difference in color, a slight whitening and condensation of the tissues. Usually, however, it must be recognized by touch. With the bladder separated to some distance above the fold and a finger pressing the fold against the uterus and moving about, the operator can appreciate that one peritoneal surface is moving on the other. It is then caught with a forceps and clipped with a scissors, opening the peritoneum (Fig. 8). Occasionally the peritoneum is opened simply by the dissection up to it, a spot of smooth peritoneum showing as the bladder is pushed up from the uterus.

As soon as the peritoneum is opened, the opening is enlarged laterally by the fingers and the retractor is slipped inside the peritoneal cavity, the hips having been elevated to cause the intestines to gravitate away from the opening. A large taped pad is then introduced (Fig. 9) and the tape clamped out of the way. Care is taken to separate the bladder well out laterally from each broad ligament, so as to carry the ureters up out of danger and isolate the broad ligaments anteriorly, preparatory to clamping later.

3. **Separation of rectum from uterus:** The cervix is now raised, a transverse cut is made on the posterior surface and the blunt dissection is carried down to the posterior peritoneal pouch, which is opened (Fig. 10). The opening is then enlarged far laterally by the fingers, to separate the rectum from the uterus and isolate the broad ligaments posteriorly. The posterior retractor is then introduced into the peritoneal pouch. The posterior vaginal incision is connected with the anterior at each side of the cervix and the vaginal wall at this junction is pushed out so it will not be caught in the broad ligament clamps. The uterus is now held in the pelvis only by the broad ligaments, which have

been well isolated anteriorly and posteriorly preparatory to clamping and division.

4. **Excision of the uterus:** Under guidance of touch posteriorly and sight anteriorly, the broad ligament of each side is clamped with heavy toothed-forceps (Fig. 11) and divided (Fig. 12), the uterus in the meantime being drawn down as each portion is divided, to facilitate the clamping of the next higher portion. It is important to avoid using a large number of clamps. By good isolation of the lateral vascular tissues, as already described, and care to include as much of the ligament as possible in each clamp, the broad ligament of each side may usually be taken care of by three clamps (Fig. 12). It facilitates the work somewhat to place the last clamp on each side from above downward. As the last portion of clamped pedicle is divided the uterus is removed (Fig. 13). There is now plenty of room to palpate the adnexa, and to remove one or both, if conditions require such removal.

5. **Fastening round ligaments under the bladder:** The upper pedicle clamp on one side is pulled down, bringing the round ligament into view. The ligament is identified and caught with a forceps (Fig. 13) and the same maneuver is carried out on the other side. The round ligaments are sutured together, and then, with the same suture, they are fastened to the vaginal wall well under the bladder (Fig. 14). The forceps are removed and the round ligaments sutured together down to the top pedicle clamps (Fig. 15), thus forming a support under the pushed-up bladder.

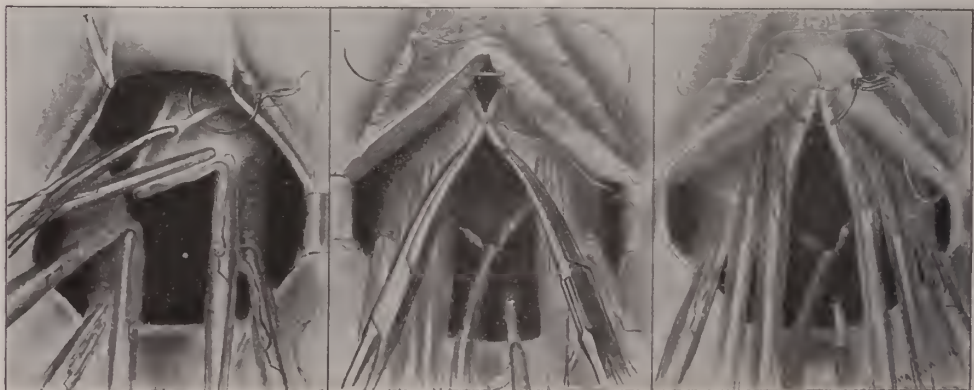
6. **Suture-ligation of pedicles:** As the pedicle clamps are reached, the suture-ligature is applied in such a way as to ligate the upper portion of the two pedicles securely together and give complete hemostasis (Fig. 16). This process of suture-ligation is continued rapidly downward (Fig. 17) until



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the two pedicles are completely ligated and all clamps removed (Fig. 18).

7. **Shortening of utero-sacral tissues:** The lower end of the ligated pedicles is raised and an attempt made to identify remnants of the utero-sacral ligaments (Fig. 18) or adjacent tissues. If a band running up toward the sacrum can be identified, on one or both sides, and isolated sufficiently for safe suturing, a suture is placed as high as possible (Fig. 18) and tied. This serves to anchor upward and backward the posterior portion of the upper pelvic plane and the vaginal vault.

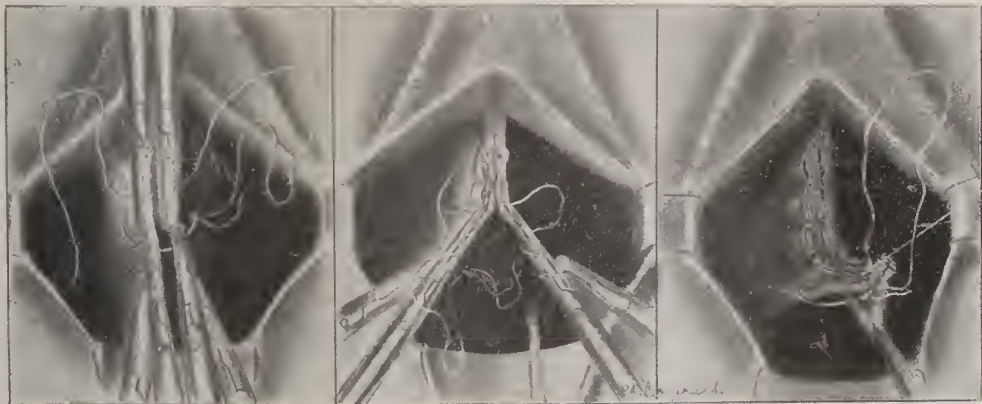
8. **Closure of culdesac about drain:** It is advisable to drain in these cases, and a small piece of thin rubber dam, rolled, answers the purpose very well. The edge of the culdesac-peritoneum is picked up with the suture and the drain is placed (Fig. 19) and then the suture is tied, closing the peritoneal opening (Fig. 20).

9. **Reenforcing hemostasis:** There is usually considerable oozing from the tissues next to the rec-

tum, so these tissues are picked up with several bites of the suture, enough to check bleeding (Figs. 20 and 21). The exposed ends of the main pedicles may then be further sutured as thought necessary to insure hemostasis (Fig. 22).

10. **Closing the vaginal incision:** The excess of vaginal flap is trimmed off on each side (Fig. 23) and the incision closed by a deep row of buried sutures (Fig. 23) and then by a superficial row closing the surface (Fig. 24). It is well to avoid too tight a closure, which would favor the accumulation of fluid between the deep wound surfaces.

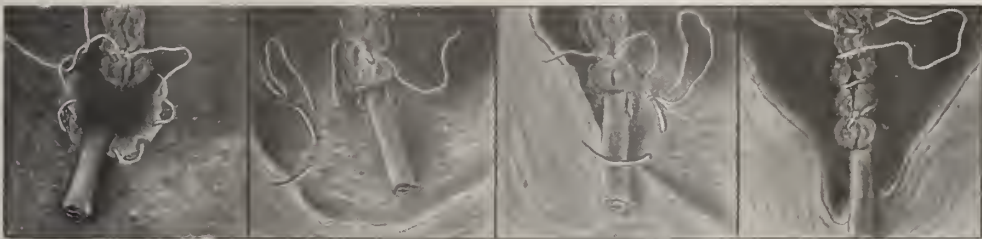
11. **Repair of pelvic floor:** In practically all prolapse operations repair of the pelvic floor is required to restore the lower supporting plane. The repair is carried out in the regular way by opening the pelvic floor and then making subvaginal approximation of the sides of the pelvic sling. To make this repair effective the sides of the musculo-fibrous pelvic sling must be actually identified and sutured (Fig. 25).



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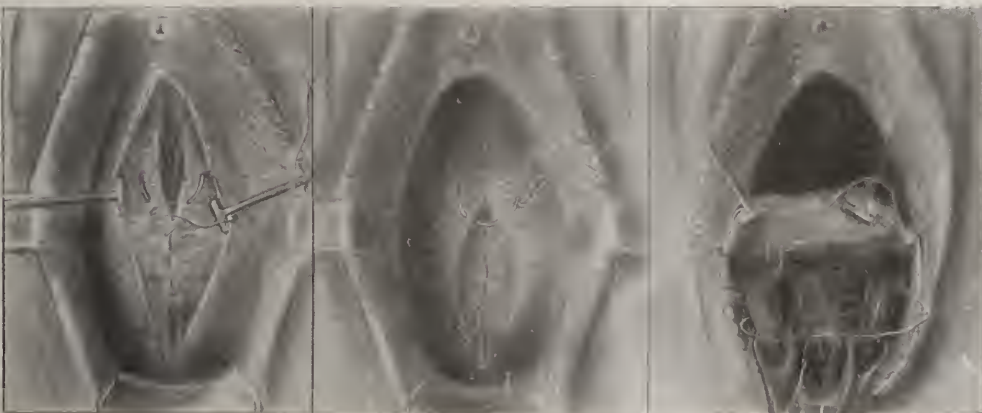


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CASES OF LATERAL SINUS THROMBOSIS

J. J. McLOONE, M. D.
Phoenix, Ariz.

(Reported before the Staff meeting at St. Joseph's Hospital, Phoenix, March 12, 1928).

Patient, L. M., girl aged 11, first seen August 29, 1927.

History: Left ear has been discharging since April last. There had been slight and infrequent attacks of pain during this time. Pain became very much aggravated about two weeks ago following a swimming episode. Ear has discharged continuously during this period. Heard voice at three feet in affected ear. Subsequent to first operation the fact was elicited that the child's ear had discharged at frequent intervals ever since she was about five years of age.

Examination: Temperature, $99\frac{1}{2}$; pulse, 84. Areas over mastoid antrum and tip were tender. There was a pulsating discharge coming from the middle ear through a small ragged perforation in the upper outer quadrant of drumhead. There was no sagging of auditory canal. Pus from middle ear showed staphylococci.

Blood count: White cells, 5,500; mononuclears, 31 per cent; polynuclears, 67 per cent; eosinophiles, 2 per cent.

Wassermann test negative. Complement fixation reactions for tuberculosis negative.

X-ray: Normal pneumatic structure on the right side with fairly good preservation of bone detail. The left side showed eburnation of bone with complete loss of pneumatic structure. The bone immediately around the location of the antrum shows some irregularity in density and it is possible that there is some bone infection here. Lateral sinus is well back away from the canal, overlapping the posterior margin of the process.

On August 3d, the date of patient's admission to hospital, the leukocyte count dropped to 4,000; with 75 per cent polynuclears.

Operation: Mastoid operation was done on the following day. Mastoid process was found to be of the sclerotic type with few pneumatic cells. Lateral sinus was in close proximity to the posterior canal wall, which it was necessary to partly remove in order to gain entrance into the antrum.

A small area of diseased bone was found over knee of lateral sinus. The sinus was macroscopically normal in appearance. A line of necrotic cells was encountered deep down along posterior wall. There was also evidence that the lesion had invaded the bone covering of the middle fossa. The mastoid antrum contained pus and granulations. All diseased tissue and bone was removed from the mastoid and adjacent structures. A semi-radical operation was performed.

Postoperative Course: Patient reacted well. The usual post-operative temperature prevailed, reaching normal on the fifth day. Packing was removed from wound, which was draining very freely. General condition of patient seemed much improved.

On September 5th, the sixth day following operation, child was drowsy and restless. No other changes were noted until the evening, when there was a sudden rise of temperature to 105. Pulse, 120; respirations 28. This temperature gradually receded but did not reach normal. There had been no chilly sensation or chill. Patient stated that she was free from pain.

From September 6th to 14th, daily temperature ranged from $97\frac{1}{2}$ in the morning to $103\frac{1}{2}$ in the evening; pulse, from 100 to 120; respirations, 24.

During this time there were no chills or chilly sensations. Short spells of drowsiness and ner-

vous irritability were noticed. There was no headache, nausea, or vomiting. Spinal puncture was done and reported negative. Culture from mastoid wound showed staphylococci only. Blood culture taken at this time revealed no growth in 48 hours.

The leukocytes, for a brief period, increased to 9,600 with 95 per cent polynuclears. However, on the following six days, leukocytes remained between 4,000 and 5,000 with an average polynuclear count of 85 per cent. There was a gradual reduction of red cells to 3,800,000 with a hemoglobin of 85 per cent.

Widal reactions proved negative for *Bacillus typhosus* and paratyphoid A and B.

Upon questioning the child's mother, I found that she had eaten lunch at a goat farm on several occasions previous to present illness. The Malta fever test, as well as a second bacteriological test for typhoid, were found to be negative.

A general physical examination made by Dr. Milloy showed nothing of moment except an enlarged spleen.

In view of probable septic focus and the early necessity of exploring the lateral sinus, a blood transfusion was done by Doctors Milloy and Vivian. To this the patient reacted well showing an increase of reds to 4,990,000 and hemoglobin 90 per cent. The leukocytes, however, still remained low (4,800) with polynuclear count of 68 per cent.

During the following three days patient manifested a slight improvement in her general condition.

The leucopenia still prevailed until September 14th, when a moderate leukocytosis of 9,400 with 68 per cent polynuclears, was noted. For the first time since the operation, patient complained of cephalgia. Pain was mostly felt in the region of the operated mastoid and radiated over the left side of the face. On September 15th she had a definite chill lasting 20 minutes, which was followed by a maximum temperature rise of 102.8.

Urinalysis on this date showed several blood and pus cells. Repeated blood cultures taken up until this time, were reported sterile.

Exploration of the left lateral sinus was decided upon and done on September 16th. Shortly before entering operating room, child had a second definite chill.

Mastoid wound was reopened and lateral sinus exposed from torcular to the lower limit above the bulb. In the upper sigmoid portion, a small area of diseased sinus wall was encountered. Temporary dressings were applied to the mastoid and attention directed to the left internal jugular, which was exposed, resected and ligated by Doctors Vivian and McLoone. After plugging both ends of sinus, an incision was made and a mural thrombus found and removed. Part of sinus wall was resected. Free bleeding was established from above and below and plugs reinserted. Complete radical mastoid was done. Wound was dressed in the usual manner.

On September 18th, child complained of pain in right thoracic region. Chest examination made by Dr. Milloy revealed a pleural friction rub over right lower lobe in axillary line, with a few fine rales at base of lung. Temperature on this date did not exceed 102.8; pulse, 110; respiration, 26.

A blood culture had been taken on the 14th but showed no growth until the 18th, when the finding of a hemolytic streptococcus was reported. Two days following operation temperature rose to 104.4; pulse, 122.

On September 26th, blood culture taken during postoperative period was reported sterile. From

this time until the 28th of September, temperature ranged from normal to 101 and 103. At this time chest condition had practically cleared. Very little drainage was present in either mastoid or neck wounds. Sinus wall was found to be entirely collapsed.

On October 2d, child's temperature reached normal and remained so during the remainder of her convalescence. She was discharged from the hospital on October 9th, much improved. At a subsequent date the postauricular wound was permanently closed with plastic flaps.

CASE 2.

Patient M. C., girl aged 8, first seen October 9, 1927.

October 9, 1927 patient had an attack of right-sided otitis media with slight mastoid involvement. At this time I opened her drumhead. Discharge was rather free and abundant for a week and then subsided.

Patient did not come under my observation again until December 9th. At that time I was called to see her on account of a severe pain in right ear.

Examination showed a perforation of the tympanum in the lower posterior inferior quadrant. Discharge was scant. There was no sagging of canal wall. Mastoid was very tender over entire process.

Patient was admitted to hospital on December 10th, with a temperature of 103, severely ill, very pale and toxic. Shortly after admission, patient had a chill lasting 10 minutes with a rapid temperature rise to 105.2; pulse, 115; respirations, 130.

Bacterial examination of aural discharge revealed a streptococcus.

X-ray was taken with following report:

"Examination of the mastoid areas of this child show more cell structure on the left side, with diploetic bone structure on the right. The right sided cells along the posterior margin have largely disappeared. We believe there is some bone destruction in the posterior cells of the right side.

"The sinus crosses the posterior half of the process apparently with good space between sinus and canal."

Blood showed a hemoglobin of 90 per cent with 18,800 leukocytes and 95 per cent polynuclears.

First operation was done on the following day, December 11th.

Operative Findings: Mastoid cortex was rather thick. The antrum was filled with granulation tissue and pus; all the cells extending from the tip to the lower antral entrance were found to be necrotic. Many of these cells contained pus. Posterior to the tip and overlying lateral sinus was a large area of granulation tissue. Many partially destroyed cells were found overlying the knee of the sinus. These were removed and disclosed a rather extensive parasinus abscess. Sinus was uncovered from the torcular end to portion close to the bulb. Macroscopically, it appeared to be normal. The operation lasted 40 minutes and patient was returned to bed in good condition.

Following operation the temperature presented a septic course, ranging from 100 to 104.5. There was a chill on the fourth postoperative day, followed by two distinct chills on the fifth postoperative day, at which time the second operation was done.

The blood count showed hemoglobin, 70; ery-

throcytes, 3,570,000; leukocytes, 7,200; polynuclears, 83.

Blood cultures up to this time had been negative. Culture from mastoid wound showed streptococci and gram negative bacilli.

On December 13th, the findings of a general physical examination made by Dr. Fournier were reported negative.

Repeated blood examinations showed a decreasing red count, as well as a gradual diminution of hemoglobin. The white cells averaged between seven and eight thousand with a relatively high polynuclear count. Despite negative blood cultures, clinical findings pointed to a general sepsis. With this in mind and in view of the urgency of further surgical interference, a blood transfusion was done on December 15th by Doctors Milloy and Vivian. Recalling the type of pathological change in the immediate vicinity of the lateral sinus, together with a septic type of temperature and chills, a diagnosis of sinus thrombosis was made.

The second operation was done on the 18th of December, five days after the first one, under ethylen gas anesthesia. Internal jugular of the right side was resected and ligated, by Drs. E. P. Palmer and McLoone.

Sinus was opened after plugging above and below. Free bleeding was obtained from above. After removing the lower plug, the hemorrhage was comparatively slight. I passed a current into the sinus toward the bulbar end of the sinus and released a small clot. This was followed by free bleeding from below. Portion of the sinus wall was resected and wound was dressed in the usual manner.

On the 17th of December, the day following second operation, patient complained of pain in the right ankle joint. Mercurochrome was given intravenously. Chill followed and temperature reached 104.6 with pulse 100 to 124 and respiration 26 to 32.

Examination of ankle joint showed it to be slightly tender to touch. Its motility was somewhat impaired. There was no swelling or inflammation. On the following day the same condition prevailed in left ankle joint in a less marked degree. Other than this, repeated physical examinations made by Dr. Fournier revealed nothing of moment. The blood picture showed some improvement. Hemoglobin, 79; erythrocytes, 3,930,000; leukocytes, 14,000; polynuclears, 71.

Urinalysis was negative. Repeated blood cultures taken during the entire period of the child's illness showed no growth.

During the six days following the second operation the temperature ranged from 98.8 to 102.2; pulse 92 to 122; respiration 20 to 30.

On the 22d of December all dressings were removed. Sinus was carefully examined and found to be completely collapsed. Middle ear dry. There was a slight amount of drainage coming from the bulbar end of the sinus. Smear from wound showed many pus cells, but no bacteria. Culture, gram negative bacilli.

Patient experienced almost daily chilly sensations preceding temperature rise, and on one or two occasions distinct chills were reported. There was some nausea and vomiting. In early morning hours, the nurse noticed frequent attacks of cyanosis. Nervous irritability was marked.

After the 23d of December the daily excursions of temperature were not so high, except on January 4th, when there was a chill lasting ten minutes, followed by a rise of temperature to 104.6. From this date rapid improvement took place.

On the 13th of January child was out of bed and up in a wheel chair. Nervous irritability was much less. She appeared more happy and contented. General physical condition of child was markedly improved. She was discharged from the hospital practically cured, on the 27th of January. There still remained some inability to use the right ankle joint.

Dr. Edgar Brown saw the patient in consultation and advised that she refrain from using right foot in walking for a short time. For the past month child has entirely regained the use of the right ankle and walks quite normally.

COMMENTS

This case presented several interesting features.

The blood findings did not concur with what we expect either in mastoid disease or lateral sinus thrombosis. This would indicate a low resistance of the patient even in the very beginning of her illness.

The value of blood transfusion in counteracting general sepsis, as well as raising the patient's resistance for further surgical procedure, should be noted.

Notwithstanding repeated negative blood cultures and sparse clinical findings, it was necessary to keep in mind the probable presence of a septic sinus thrombosis.

On the third day following the opening of lateral sinus and the demonstration of a clot, blood culture taken previous to operation was reported positive for hemolytic streptococcus.

COMMENTS

Although blood cultures were repeatedly negative, this case is apparently one of a streptococcic septicemia complicating a sinus thrombosis.

Frequent and properly timed intravenous medication of mercurochrome was a potent factor in counteracting the persistent period of sepsis following the second operation.

The involvement of ankle joints was undoubtedly metastatic.

A blood transfusion was done in this case, as in the previous one, with marked beneficial effect.

DISCUSSIONS

Replying to questions, Dr. McLoone said it frequently happens we are unable to demonstrate the true offending organism.

Even in a case of sinus thrombosis, streptococcus alone may show in the aural or mastoid discharge, while the true offending bacteria have already gained entrance to the lateral sinus, whence, following the formation of thrombus, they are spread to the blood stream.

We can also have a thrombus with typical clinical findings, such as septic temperature and chills and still be unable to demonstrate any bacteria by blood culture.

Blood cultures are reported negative in more than 50 per cent of these cases.

DIAGNOSIS AND TREATMENT OF BRONCHIECTASIS BY THE INJECTION OF IODIZED OIL

GEORGE TURNER, M. D.,
El Paso, Texas.

Read before the El Paso County Medical Society,
Feb. 27, 1928.

Iodized oil as referred to in this paper consists of a vegetable iodized oil, prepared in France and sold under the trade name of "Lipiodol." The oil is obtained from poppy seed and is an unusually stable vegetable oil. It is iodized with forty per cent of iodine. The iodine is in fixed chemical combination with the fat and is liberated very slowly. It is dispensed in twenty c. c. aluminum cups to prevent decomposition. In its suitable state for use it is practically clear, being only slightly straw colored. If it is brown, free iodine has been liberated and it should not be used in the chest.

The fixed combination of the iodine with the fat renders it unirritating, thus making it tolerated by the lining membrane of the respiratory tract. It disintegrates very slowly in the respiratory tract and very little iodine is absorbed from this source. When taken into the stomach and acted upon by the alkaline secretions of the intestinal tract it is broken down more rapidly and several cases of mild iodism have been reported from the incidental ingestion of the compound. Dr. Pritchard, of Battle Creek, reports six cases of mild iodism from the incidental swallowing of the oil in one thousand cases of introthoracic injections. The oil enters the stomach by being swallowed at the time and swallowed after injection. If it is known at the time of injection that an appreciable amount has been swallowed, it should be followed by a dose of castor oil to insure its elimination before disintegration.

The oil is eliminated from the bronchial tree largely by cough and expectoration. During the few hours that follow intratracheal injection most of the oil is expectorated. A portion however may be visible on radiograms for several weeks. The absorbed portion is eliminated at the rate of about two centigrams per day after the intratracheal injection of twenty c. c. of the oil.

The methods so far employed for the intratracheal injection are, (1) transglottic; (2) subglottic, (3) bronchoscopic; (4) supraglottic.

The transglottic method consists in introducing a flexible rubber catheter through the larynx and injecting the warmed oil directly into the trachea through the catheter.

ter. The catheter is introduced after anesthetizing the larynx and partially anesthetizing the lining membrane of the trachea.

The subglottic method consists in passing a hollow curved needle attached to a metal guard through the cricothyroid membrane into the lumen of the trachea after anesthetizing the skin and subcutaneous tissues. The position of the needle can be ascertained by attaching a syringe and aspirating. The presence of air or mucus is proof that it is in the trachea. This method was employed by Forestier and is used largely by the French clinicians.

The bronchoscopic method includes the injection of the oil into that portion of the bronchial tree where injection is desired directly through the bronchoscope. It has the advantages of precision in the quantity administered and of suction evacuation before the oil is injected.

The supraglottic method is the process most often employed because of its simplicity. It consists simply of allowing the warmed oil to flow through the glottis into the trachea without touching any structures of the throat with an instrument, or in most cases without subjecting the patient to any sort of anesthesia. All of the other procedures require anesthesia. This is the only method I have personally employed.

Technic of the supraglottic method is as follows: By the aid of a strong light, head mirror and laryngeal mirror, the throat and larynx are examined. This is to make sure that no acute infection exists; to learn how reflexive the patient's throat is to the touch, and to get the position of the glottis precisely in mind. The patient is then instructed to continue to breathe while the injection of the oil is in progress; not to swallow at all, nor to cough if it can be avoided. Twenty c. c. of the warmed oil is placed in a metal syringe with a long metal cannula attached. The curve of the cannula is adjusted after a preliminary study of the patient's throat. The patient is placed on the side into which injection is desired and the head is elevated by resting the elbow on a pillow with the hand against the side of the head. By the aid of the laryngeal mirror the tip of the cannula is held slightly above the open glottis and the oil is slowly but continuously injected. Any surplus of oil remaining in the throat should be expectorated and not swallowed. The oil will gravitate in a few seconds to the lower lobe bronchial trunks of the dependent lung. If it is desired to inject an upper lobe, the pa-

tient should be placed on the side desired to inject and after the injection is finished, and before the trachea and hylum are empty, the upper lobe should be made dependent by lowering the head and elevating the hips. This can be accomplished by lowering the head of the table or by elevating the hips with sand bags. Occasionally, a case will be encountered that is highly nervous or whose throat is especially sensitive and whose cooperation it is impossible to obtain. In such cases complete anesthesia is necessary, and I have not hesitated to use one part of twenty per cent cocaine and two parts of 1:1000 adrenalin to obtain such anesthesia. The anesthetic is applied by the use of a metal applicator and cotton swabs. Some operators report good



Fig. 1. Case of chronic bronchitis of twenty years duration. The left bronchial tree is dilated and nodular.

results from spraying the throat with two per cent cocaine. The danger from this is in swallowing a certain amount of cocaine solution. If it is swabbed on the posterior pharyngeal wall, pillars, tonsils, glottis and vocal cords no cocaine narcosis is observed.

The purposes for which the injection of iodized oil has proved itself of value are both diagnostic and therapeutic. It gives singular information in (1) fistulae of the chest wall, (2) lung abscess; (3) chronic bronchitis; (4) bronchiectasis; (5) intrathoracic tumors; (6) suppurative lung conditions; (7) foreign bodies; (8) and

certain cases of tuberculosis. It has beneficial therapeutic effect in cases of bronchiectasis and chronic bronchitis.

The oil outlines with precision the ramifications of any fistulous tract, enables the surgeon to determine if surgery is indicated and, if so, the nature of operation to perform.

In lung abscess the cavity itself rarely fills even though it has just been emptied by inverting the patient shortly before injection. The interstitial infiltration comprising the rather dense wall or debris in the draining bronchus usually prevents the oil from entering. It does, however, fill the bronchi around the abscess area which enables a more precise location of the abscess and determines if there is associated bronchiectasis. The injection of lung abscess areas after operation shows if there is complicating bronchiectasis.

Information regarding the size of the bronchi is obtained in cases of chronic bronchitis. Long standing cases of this condition show rather large and dilated bronchial trunks, (Fig. 1).



Fig. 2. Antero-posterior view of case of bronchiectasis, after injection with lipiodol, showing distribution of bronchiectatic lesions in lower right lobe. Phrenicotomy has been performed.

It is probably in bronchiectasis that the oil has its broadest field of usefulness. Frequently rather large sacculations exist, with walls so fragile that the true condition is not apparent on the straight radiographic plate. The patient may expectorate large

quantities of sputum, yet the radiogram reveals practically nothing. The oil locates the origin of such sputum, even though the pockets are situated behind the heart or below the dome of the diaphragm, (Figs. 2 and 3).



Fig. 3. Lateral view of patient shown in Figure 2, showing right lower lobe bronchiectasis. Phrenicotomy has been performed and the difference in diaphragmatic levels is shown, with the flattening effect on lesions.

Intrathoracic tumors may be studied by injection from a standpoint of suppurative change in the tumor tissue itself and deviative changes in the trachea and bronchi produced by the tumor.

Suppurative changes of lung tissues are very similar to lung abscess but the condition is more extensive. Frequently, the entire lung field is overshadowed and the injection is necessary to determine if cavitation exists in the underlying lung structure.

Occasionally a foreign body drawn into the lung is of a texture so rare as not to produce a shadow. It can be located by oil injection because of its obstructive action in the bronchus.

In inactive fibroid cases of tuberculosis where bronchiectasis is suspected, it is safe to inject the oil. It will also show the condition and position of the bronchi.

The therapeutic effect of the oil in bronchiectasis is brought about by (1) lessen-

ing the amount of expectoration; (2) reducing the number of bacteria in the sputum; (3) lessening the toxic symptoms; and (4) reducing the size of the dilatations. The oil will remain in a bronchiectatic lesion from one to six weeks, depending upon the size of the cavity and the size and position of the bronchus of which it is a localized dilatation. The iodine from the slowly disintegrating oil has its effect upon the wall of the pocket during its stay in the lesion.

The course followed has been to re-inject as often as the pockets appear entirely empty on fluoroscopic examination. When a case is first injected it should be fluoroscoped each week afterwards, until the length of time required for absorption and elimination is observed. Each case is different in this respect and should be so regarded.

In chronic bronchitis the annoyance of cough is greatly lessened and the amount of expectoration decreases. The bronchial secretions are brought up with greater ease and the number of bacteria decreases. The irritation is in the larger bronchi and these do not remain filled or even coated with oil. The irritated wall membrane takes up a certain amount during its stay in the bronchus and the residue accumulating in the lower part of the lung is brought up through the irritated area during the few days that follow. The effect seems to last about two weeks in these cases.

There are several contra-indications for the intra-tracheal injection of iodized oil. Some of these are; (1) acute inflammatory involvement of any part of the respiratory tract; (2) acute active tuberculosis; (3) recent hemoptysis; and (4) extensive suppurative conditions causing extreme weakness. If there is any degree of acute inflammation about the throat, there is danger of carrying infective material along with the oil to the deeper lung structure. Consequently, it is wise not to do an injection in the presence of an irritated throat or acute cold.

The congestive action of the iodine on the membranous lining of the bronchial tree seems to irritate acute tuberculosis and cause a definite increase of symptoms. It will increase the temperature for several days.

CONCLUSIONS

By the use of iodized oil bronchiectasis can be precisely and harmlessly diagnosed.

The oil has a beneficial effect on bronchiectasis and chronic bronchitis when employed for treatment purpose.

DISCUSSION

Dr. R. B. Homan: Dr. Turner is to be congratulated on the work he has done along this line. We

have had a number of patients who have been very much benefited by the injections.

Dr. P. R. Cassellas: Dr. Turner is the pioneer in this work in El Paso. I have a technic which I thought was original with me, but I find that someone else has used it and has published it. After anesthetizing the pharynx I have the patient take a mouth full of the lipiodol. When he breathes the oil slips down into the trachea. I do not think there is any danger of carrying infection from the upper part of the tract, because the preparation is antiseptic.

Dr. J. W. Laws: I saw Dr. Ochsner, of New Orleans, inject lipiodol. He anesthetized the anterior pillars, washed the mouth with an antiseptic, and gave the patient 20 c. c. of the oil in the mouth, and told him to breathe when instructed.

Dr. Orville Egbert: The use of lipiodol has been a great satisfaction to the clinician. It has considerable practical value.

Dr. F. P. Miller: There has been much progress in the technic of lipiodol injections. It has gradually become simpler. In treatment there is usually more benefit to dilatations near the hilus. Dilatations at the periphery often fail to respond, and do best under some form of collapse.

Dr. Paul Rigney: I would like to ask Dr. Turner what he thinks about subglottic injection of lipiodol.

Dr. Geo. Turner (closing): The subglottic method is likely to cause trouble if there is any tracheitis. If the oil is placed in the mouth there is some danger of carrying infection from the mouth. Altho the lipiodol is germicidal, it does not mix well with the saliva, and the germicidal action is therefore limited. I favor placing the oil back in the mouth. Lipiodol should not be used where the process is suspected of being tuberculous, for there is danger of activation of the process by the iodine.

MEDICAL JURISPRUDENCE

HON. MAURY KEMP
El Paso, Texas

Read before a joint meeting of the El Paso County Medical Society and the El Paso Bar Association, April 2, 1928.

I conceive medical jurisprudence to be the joint or concerted application of the science of philosophy of the law and of medicine, as that term is used in its broader sense, to the science of the mind. The time limitation will permit only a reference to this interesting subject in a most general way, and it may be wise to make reference only to those cases and those conditions which most frequently fall under the observation of those interested in the science of medicine or the science and philosophy of the law—I mean those cases which come under the broad or general definition of insanity, and the legal complications that may arise in the relationship between the insane and the law governing their rights and safeguarding their property and their persons.

Morel, the famous French alienist, was the author of a great work on the subject of medical jurisprudence and insanity. In discussing the history of insanity, he relates that the subject was little known or

appreciated by the ancients except the Romans. Among the more primitive peoples, insanity was a mystery, attributable at times to divine origin. Wharton tells us that at times the madman was an object of study. The Bible is our authority for the statement that when King David fled from the anger of Saul and sought protection with the King of Gath, he feigned insanity, he fell on his face before the doors of the gate and let his spittle fall down upon his beard, and the King exclaimed "Have I need of a mad man, that ye have brought this fellow to play the mad man in my presence? Shall this fellow come into my house?" Winslow, in his famous work, "Plea of Insanity," cautions the medical expert not to attempt to define insanity; and a distinguished English lawyer, Justice Blackburn, cried before the House committee, "I have read every definition that I could meet with, and never was satisfied with one of them. I verily believe that it is not in human power to do it."

Insanity has been defined as an affection of the brain, characterized by derangement of the mental faculties. This, however, may include the delirium of fever, that quickly passes off; it may include a mere delusion; it may include a temporary derangement caused by fatigue, grief or anger, which, under given circumstances would not, so far as the application of the law is concerned, immune the sufferer from the penalties of the law, or entitle him to rights to which the normal person is not entitled. Therefore, we must content ourselves with the fact that the condition is one that must be determined in each individual case at the time and place, and under all the circumstances, and the question of a temporary or permanent condition has no bearing upon the general or legal definition of insanity.

Courts of equity will relieve against contracts that are made or entered into in a state of intoxication, provided the state of intoxication produced incapacity from a mental standpoint. The courts will go further and grant relief where the use of intoxicants produced such intense mental excitement that one of the contracting parties was susceptible to undue influence on the part of the other party, who, by the terms of the contract, gained an unfair advantage. And yet we would hardly be justified in saying that the party who sought such equitable relief, on the grounds referred to, came under the general head of those classified as insane.

In the matter of criminal procedure, where the issue of the mental condition of

a defendant charged with crime—especially murder—is raised, where there is evidence of inebriety or of intoxication over a considerable period of time, the jury must be allowed to pass upon the mental condition of the defendant, as regards insanity produced by the recent use of alcohol, and yet abstinence will return the party availing himself of such defense to a normal condition.

In the matter of the execution of wills, the time element enters into the determination of the mental capacity of the testator. The point of time to be taken into account in testing the capacity of a testator is that at which the testamentary instrument or will was executed. Mere weakness of mind and forgetfulness are not sufficient to invalidate a will, where it is made clearly to appear that the mind of the testator was attentive and capable of exertion when aroused, and where undue influence was not brought to bear upon it. If capacity exists, the courts will not lend a hand in undertaking to determine the degree of that capacity, but the courts will offer a strong arm in support of those efficient and strong in natural ability in exercising or using the powers they do possess. Mere imbecility or mental weakness or impairment, regardless of the cause, will not necessarily defeat a will, if there is absence of fraud or undue influence, especially where such imbecility or weakness, though it may unfit the testator for the management of his estate, does not severely impair his reasoning faculties or his memory. In the case of *McIntosh vs. Moore*, the Texas court laid down the rule that mere physical weakness, though it renders the testator unable to transact business, does not alone incapacitate him from making a will. No scientific definition of testamentary capacity can be given, it may mean one thing with one court and another with another. The testator must understand the nature of his business, the size of his estate, and his legatees. It has been said that this is the legal tripod upon which stands the definition of testamentary capacity. As Wharton puts it, the determination of testamentary capacity is purely a matter of diagnosis, and usually one of the most difficult in psychiatry.

In the matter of criminal procedure, the courts have determined that defenses offered for the commission of crime because of drunkenness, are to be received with great caution, but, under the rules, such defenses are to be received. In the commission of a crime such as murder, which can be committed only by doing a particular thing

with a particular intent, it is permissible to show as a defense that, at the time of the commission of the offense, the accused was so drunk that he could not have entertained or formed in his mind the deliberate intent necessary to constitute the offense. Expert medical advice may be sought by the courts, in the nature of testimony, to show that intoxication may be considered in determining the condition of the mind of the accused upon the question of malice, and the medical man may testify that intent did or did not exist in the mind of the accused, under his plea of intoxication. The question, of course, regarding the accused—charged with a crime involving a specific intent—who has interposed drunkenness as a defense, is one of fact for the jury to pass upon after having heard the testimony of expert witnesses.

And what has been said with reference to cases of intoxication, will apply to *coco mania*, or the insanity from which cocaine addicts suffer, and, to go further, will apply to those who fall victims to the use of chloral and the bromides, most of which unfortunate patients range over a very wide field. The difference is that the victims of alcohol intoxication return to sound mental condition, at least at stated intervals, and maintain a physical and mental vigor during periods of abstinence that the drug addicts do not experience. During these periods of abstinence the law will operate on them, whether for their help or protection or for the help and protection of others as against them, as though there had been no indulgence in the use of intoxicating liquor.

On the question of insurance, the insurance companies have sought to protect themselves against insane suicide by providing in their policies against payment if the insured should die by suicide, while sane or insane, within a given time. This provision in insurance policies has been sustained by the courts, and policies limiting payment, in the case of insane suicide, to the legal reserve, are not prohibited by law providing the reserve is ascertainable. These provisions, however, are not meant to cover the case of unintentional self-destruction, and the question of whether death by suicide of an insured person was intentional or unintentional, or the result of insanity, is not a question of law, to be determined by the court, but is one of fact, if the issues are raised, to be determined by the jury, who will hear all of the facts and circumstances surrounding the death and hear the testimony of alienists and of the expert medical man, in considering the

question for determination. The mere fact of suicide will not establish insanity. A belief in spiritualism on the part of the insured will warrant no legal conclusion that his death was by suicide, but his declarations and his conduct, at or about the time of his death, all bear upon the question of his sanity or insanity, and they may be submitted to the physician who appears as an expert witness, with other testimony, if the opinion of an expert be sought.

So, too, the question of insanity, whether temporary or permanent, whether produced by the recent use of alcohol or of drugs, or as the result of some other cause, involves the laws of limitation; but incompetency, as a result of the use of drugs or intoxicating liquors, relied upon to exonerate one from the consequences of his own neglect or delay, and exempt him from the laws of limitation, must be an incapacity absolutely preventing him from understanding or realizing the nature and consequences of deception or legal fraud that may have been practiced upon him, and from understanding or realizing his rights and preventing his taking proper steps to protect himself. Mere temporary excitement, from liquor or other causes, unless tending to deprive him of his reason and understanding, is not sufficient to take him out of the statutes of limitation. However, with reference to legal capacity, it is not material, so far as the running of the statute is concerned, from whence arose the condition of the party's mind, whether through his own voluntary act or excessiveness, or whether through the act of Providence.

It is interesting to note that, until the close of the nineteenth century, the insane received but little attention from physicians, and little or none from psychologists. Wharton tells us that in England they were regarded as outcasts, devoid of sensibilities which called for ordinary care; that, in England and in France, unless birth or wealth gave special opportunities for their custody at home, they were huddled in pens or chained in cells, where they were generally subjected to treatment the most brutal. He further tells us, however, that on the insanity of George III a new era came in. Insanity ceased to be so vulgar a thing when it attacked a king. But the great Pinel must be given the credit for first realizing that these unfortunates were a part of the community to be cared for, protected and helped, and that asylums or institutions were necessary for their welfare and for the welfare of France.

It is hard to conceive of anything much more uncivilized than the application of the

old English law so far as an adjustment of penalty to crime is concerned. He who raided his neighbor's poultry yard in the dead of the night, might be capitally punished, and after a century of legal reform, the law of England was, until very recently, and it still may be so, that a man who kills another, when designing to hurt but not to kill, is amenable to as high a sentence as he who deliberately commits a murder. Thoughtful observation will check us in the matter of contemplating the subjection of crimes so entirely distinct to the same penalty, and the courts of our country, in casting about for some method of relief, found a remedy, at least in a large measure efficacious. Elther murder is divided into two degrees, capital punishment being exclusively reserved for cases in which premeditation and design to take life is proven, or murder and manslaughter are specified. Under the laws of our state, he is guilty of murder who, with malice aforethought, shall kill any person within the state, and murder is defined to be distinguishable from every other species of homicide by the absence of circumstances which reduce the offense to negligent homicide, or which excuse or justify the homicide, and the punishment may be death or confinement in the penitentiary for life, or for any term of years not less than five, to be determined by the jury. Generally speaking, he is guilty of manslaughter who commits a voluntary homicide under the immediate influence of sudden passion arising from an adequate cause, but neither excused nor justified by law.

No act done, under the laws of the State of Texas, in a state of insanity can be punished as an offense, nor can any person who becomes insane after he has committed an offense be tried for the same while in such condition, nor shall a person who becomes insane after he has been found guilty, be punished while in such condition. Proceedings for the determination of this condition are interesting; and afford a splendid field for the honest and the learned of your great profession.

Under the law of Texas, neither intoxication nor temporary insanity of mind, produced by the voluntary recent use of ardent spirits, shall constitute an excuse for the commission of crime; evidences of such temporary insanity, however, produced by such use of ardent spirits, may be introduced by the defendant in mitigation of the penalty attached to the offense for which he is being tried, and when temporary insanity is relied upon as a defense, and the evidence tends to show that such

insanity was brought about by the immoderate use of intoxicating liquor, the Judge shall charge the jury in accordance with the provisions of this article.

Such, we may consider, is the shape or form into which the law of insanity is gradually being molded. From a careful study it will be obvious that the change is a natural one. The lawyer has begun to realize that his brother, the doctor, can offer him great assistance in solving the perplexing questions that may vex his mind in determining the rights of his client.

The subject of expert testimony is, of course, included in the great subject of medical jurisprudence, and is one of great importance and great range, because it is the exception to the rule; it is at once a departure from the broad and beaten path, so far as the applicability of the general rule of evidence is concerned. In its broadest sense, evidence may be defined as any matter of fact, the effect, tendency or design of which is to produce in the mind a persuasion affirmative or disaffirmative of the existence of some other matter of fact. More simply expressed, evidence is the means by which any alleged matter of fact is established, and the courts very quickly determined that, to prevent fraud and imposition upon themselves as tribunals, and upon litigants whose rights were involved, they must formulate rigid and unbending rules as to the manner in which facts were ascertained. One of those rules sprang from the oft-quoted legal maxim "that one who sees and hears outweighs one who does not see and hear." This suggests the first element of what we commonly know as hearsay testimony, and emphasizes clearly the importance of, and necessity for, the rule that he who sees what occurs and hears what occurs is to be brought into court as a first-hand witness, while he who says he has been told what occurred is to be excluded.

The Court will not hear evidence of a witness as to what his opinion is as to the result or effect of the act complained of, because the law contemplates that the Court and jury are as capable of determining the effects and results as any witness who may be called merely to express an opinion on the subject. But the departure above referred to is the consideration given by courts to what is commonly designated "expert testimony." In a great variety of litigation, where the matters in controversy are utterly strange or unfamiliar to the court and jury, there would be no proper method, no right way of arriving at a correct conclusion, if the testimony of

men skilled in such matters as may be the subject of inquiry, should be rejected. Realizing this, the courts have adopted rules for admitting the opinions of witnesses whenever the matter, in fact, is of such a character that inexperienced persons are unlikely to prove themselves capable of reaching a correct conclusion without the assistance of those skilled in the matters or trade or science which may be the subject of litigation.

One of the first illustrations or examples of this character of testimony, which readily presents itself to us, is expert medical or surgical testimony. The aptest illustration is usually the first at hand, and from the broad range of expert testimony is to be drawn the very obvious instance of the doctor or surgeon who may be called upon to enlighten the court and jury as to the cause and effect from an anatomical or pathological standpoint. And be it said, on behalf of the average expert witness, that he usually knows his business, especially if he be a doctor or surgeon, as these terms are known to the laity. He is usually intelligent and well educated, and the average lawyer who finds that the case in hand demands expert testimony, is judicious enough in his judgment to select as a witness the most intelligent of the profession whose skill or science he demands. And it may be said that, as a rule, the intelligent surgeon or doctor is patient, forbearing and usually long-suffering in the matter of enduring the ignorance or lack of knowledge of his lawyer patron who demands his assistance. The average lawyer finds himself embarrassed at his own lack of information on the subject of anatomy or pathology, and equally bewildered at the technical knowledge and understanding of his witness.

My experience has been most delightful, as well as compensatory, in dealing with doctors or surgeons in this respect. I have, as a rule, found them honest, manifesting a justifiable and highly commendable pride in their profession, and willing and anxious to assist in getting at the facts of a given case; and the percentage of cases where honesty of purpose and integrity of character on the part of the expert medical witness have manifested themselves, is very large. But the medical profession, like all other professions, is not free from charlatans, from frauds, from quacks, and from that most dangerous membership, the medical men who have brains, ability and talent, and who are utterly lacking in integrity and whose conduct and acts are without scruple. This character of witness

quickly realizes the effect that his testimony, couched in mysterious and technical language, and delivered with a convincing ease, may have upon a jury or ordinary individuals, to whom the science of medicine and surgery is puzzling and bewildering. He glibly recites the results of an examination he may have made of a given case, immediately following an alleged accident, with each word falling from his lips as though it weighed a pound. He describes finding an ecchymosis, contusion and extravasation; he finds a greenstick fracture of the rib in the vicinity of the sternum. This dissertation impresses profoundly the average juror, and tends to induce him to believe that the party plaintiff to the suit or the person about whom the testimony is given, is in a very serious and very dangerous physical condition. If the same expert had said that he found the individual with some discolored bruises on his body, that he found a bruised or injured rib in the vicinity of the breastbone, he would have stated in plain parlance the truth as to the condition testified about. This character of witness testifies that the patient in question is suffering from traumatic neurasthenia. He leaves on the mind of the jury the idea that the condition is one of seriousness and permanence; when he might have explained that he was suffering from acute nervousness as the result of shock, and under proper treatment he would recover and become normal, just as we know thousands of good red-blooded American boys did as the result of their experience in the war. I believe it is conceded that it is not uncommon, after an injury or shock, for the memory to show some impairment. Instead of this character of witness testifying in straightforward English language to this effect, he tells the jury that the individual is suffering from myelitis accompanied by aphasia.

It is realized fully that the members of your profession are human and fallible, just as are the members of mine. I have in mind a law suit within my own experience, where two of our capable and well-known surgeons removed a piece of skull about the size of a quarter from the patient's head, and who exhibited it in court with the expert opinion that a crease therein was a fracture, and necessitated the removal of the piece of skull. Several of our best surgeons appeared before the court under summons, and testified that in their opinion there was no crack or fracture in the piece of skull, that the line pointed out as a fracture was the groove provided by nature for one of the large veins or blood

vessels inside the skull. That the opinions of all of these witnesses was honest and sincere, I have no doubt. This exhibit is still with the clerk of the Court of Civil Appeals, as I am informed, and an inspection thereof by any of you gentlemen is invited. I should be much gratified to learn what the fact is with reference to its condition.

It is sincerely suggested that the quack witness be sought out and eliminated as expeditiously as the quack practitioner. Usually the quack witness, glib of tongue and convincing as he may be in his method of delivery, is a quack practitioner, whose fee for his services as an expert witness is usually commensurate with the verdict that he helped the plaintiff to secure.

Let it be understood, however, that there is much meritorious litigation in the courts from the plaintiff's standpoint. Good men and valuable men are seriously and permanently injured, and good surgeons and capable surgeons are called to testify in their behalf in suits that they may bring in the courts. These surgeons will not hesitate, and do not hesitate, to point out the seriousness of their disability, the loss in their earning power, and the pain and mental anguish which their injuries may occasion.

No one appreciates as fully as a lawyer the importance of expert testimony, the importance of collaboration with his brother, the medical man, and the great and blended philosophy of the science of law and the science of medicine will lead to a clearer and a better understanding of those vexatious questions that have beset the courts of law and the medical profession.

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THE PSYCHONEUROSES: THEIR INFLUENCE AS AN ENTITY AND THEIR IMPORTANCE IN MEDICAL AND SURGICAL SYNDROMES

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El Paso, Texas.

(Read before the El Paso County Medical Society, March 19, 1928).

A female patient in a local sanatorium, with active tubercular infection, apparently confined to a small area in one lung, with moderate cough and expectoration and continued evening temperature of 102, improved rapidly for the first month under rest, dietary of hygienic management. Physical signs were rapidly abating. Temperature and pulse were lowered. At this point there was an active change noted in her demeanor. Her appetite became poor, digestion impaired, and she began to lose weight and strength. Careful physical ex-

amination developed no physical explanation for the arresting of the improvement of what promised to be a star patient. She just lay there and would not improve, though she was particularly anxious to get well and return to her home.

She would not admit any home-sickness. She had a husband and three young children in an eastern state, where they were comfortably situated. The household was being presided over by a distant female relative who had volunteered her services.

At the end of her first month in the sanatorium, the patient had received a letter from this housekeeper, in which the housekeeper had expatiated upon the beauty, health and general loveliness of the children in her charge. She had written the mother how happy she was with them, and how happy they seemed with her. She then spoke of the goodness and nobility of the husband, and assured the wife that she was doing everything in her power to make him happy during her absence. This letter the patient put under her pillow and read over and over when there was no prospect of interruption.

Her nightly dreams were disturbed by the vision of her husband sitting by her bedside, or walking with her in some favorite haunt but always in the dim background there could be seen a shadowy female figure. The dream would change and she was held by irresistible forces, as Prometheus bound, while a green-eyed hideous dragon approached as if to devour her. The shadowy form never materialized into a recognizable personage; nor did the dragon quite succeed in reaching the victim. She awoke in the morning tired, with a slight headache and dread of the conscious day.

Here, we had desire, anxiety and fear complex combatting scientific management, favorable climatic conditions and medical skill. The traumatic agent, the well-meaning letter, must be destroyed. The desire, anxiety and fear over the absence and possible loss of the love of her husband and children, are the active agents interfering with her recovery and the realization of her strongest desire. The discussion of the subject caused the relief of the conflict, her symbolic dreams ceased and the progress of her recovery is relieved from an important element of interference.

Miss M. J. T., age twenty-one, had a supposed epileptic paroxysm whenever she attended a funeral and at no other time. In this state she would remain oblivious to her surroundings for several hours. The family could not recall any psychic trauma that

might influence the case. With considerable painstaking effort, the early life of the patient was recalled and the following incident brought out. When she was about four years old her grandmother was killed in an accident. Her mother took the death very hard and was very much disturbed. At the funeral, her mother's grief was unusually expressive; she screamed and cried and had to be restrained from entering the open grave. Finally the mother became unconscious and fell upon the ground; the child, thinking her mother was dead, threw herself on the mother's prostrate body screaming. It was several hours before she was allowed to see her mother again, during which time she saw her mother, in fancy, being buried in the ground. She said, "I know it is foolish, but the picture comes back to me at every open grave." The paroxysms were hysterical. They were induced by psychic trauma, from the effects of which she had never been freed.

I am thoroughly cognizant of the fact that I can give but meager consideration of this subject in the time allotted to papers before this society. A subject so full of importance in the management of disease entities, and about which so much is being said and volumes written, must need much space, time and labor to cover even the most important points.

We all know that there is a psychoneurogenic element in all disease syndromes: but many of us have never given the subject due consideration nor evaluated its importance in the management of medical and surgical cases.

Mental and nervous diseases are primarily divided into psychotic and neurotic manifestation of dysfunction; yet the mind and nerve functions are so closely associated that there are few, if any, instances where dysfunction of the one does not materially influence the activity of the other.

If we are mentally agitated about our present or future food supply, or disturbed materially with reference to our human affections, our metabolism is invariably affected. If our bodies are greatly endangered, we are paralyzed with fear.

Since mental and physical development depends solely upon heredity, environment and education, it may readily be seen that personalities, peculiarities and like phenomena, under the syndrome name of psychogeneses, are materially affected by such mental shocks or psychic traumata as may have occurred during the previous life history of the individual, and that these traumata are as real as a broken bone or lacerated tissue.

Now that we have before us the basic principles of the influence of events on human existence, and the effect on nervous and mental phenomena, it is easy to see, since all our impulses are governed by mental suggestion, influenced by the sensoria and projected by nerve direction, how disease and injury must exert a marked specific influence on the mental and nervous character of the afflicted. There is nothing new in all this; we have always known that sorrow brings tears and grief anorexia, but I am afraid that many of us, and myself not the least of the offenders, have not given due consideration to the influence of psychoneurotic effects on the patients we are called on to treat. We do not give due consideration to the psychic character of the patient, nor the conscious problems that the patient may be puzzling over, and the subconscious influence these problems may have on the initiation, course and cure of the disease.

Now, I am not thinking so much of the every day phenomena such as nostalgia, anxiety complexes and similar expressions, though they have their influence, but especially would I call your attention to the subconscious influences and their marked effect, by reason of repression and mental conflict. We confess some of our sins to ourselves and our confessors, but we bury some of our repressed desires and unfortunate experiences in the subconscious, where, with the efforts of forgetting, they remain a constant irritation until nerves cry out through mental dysfunction and we are not relieved until the imps of psychosis are freed from their bondage and brought to the surface, conscious, recognized and disposed of.

The two most active agencies in psychoneurotic influences are mental conflict and repression. Their influence is often unsuspected and always far-reaching.

There is an old Hindu adage, "Beware of being caught in the pathway of opposites;" in modern mechanics, "being caught on dead center." When we are halting between two opinions we get nowhere; that is what happens with our psychotic patients with a mental conflict.

Let us now consider some of the phases of practical application:

A woman whose married life has been uneventful and whose mating was a matter of convenience, suddenly became enamored of a male acquaintance. She has borne four children to the man who is her husband. She tries to bury her mental disturbance and is only partially successful; she becomes sick, her digestion is poor, her nerve

force is lacking, she can not sleep, is cross, unreasonable and apprehensive. She is suffering from a mental conflict between love and duty; a subconscious psychic trauma. She has no idea what is making her sick. She has consulted many doctors without relief, because her illness is caused by no physical condition. Whatever physical phenomena are present are really caused by psychic influence. Finally, she consults a physician who probes the matter thoroughly; she unburdens her mind to him, brings to the surface the buried subconscious influences. She is told that this psychic conflict is responsible for all her trouble, and goes home within a short time well. Such cases may seem to be preposterous, but they are not. Some will probably say they are very rare; I assure you they are quite common. We have too long covered with the cloak of our ignorance the polymorphous phenomenon, nervousness. We look at the body and forget the mind; this accounts for many of our intractable functional diseases.

A woman had a series of hysterical paroxysms. Her friends thought she was dying; a physician diagnosed the case as meningitis. This woman was sick and badly scared, she had no idea what was causing the disturbance. She had left her husband and three children, to run away with another man. Her mental conflict produced her psychasthenia. When she was convinced that the trouble was of mental origin, she had no more paroxysms. She brought her subconscious conflict to the surface, regulated her conduct in accordance with the conditions and got relief from her psychotic trauma.

It is now thoroughly understood that the growth of the animal body, its physical outward appearance, its inner activities, physiological and psychic, depend on the glandular activity of the organism and their interrelated harmonic influences. It is but recently that I have fully appreciated how much psychological influences, governed by the sensorium, may have to do with the development and activity of the essential glands and their harmonic phenomena. The interrelation between mind and body is understood, but who of us has given due regard to the interrelation of the essential glands and the mental processes.

We now come to the gist of the whole matter: The importance of the consideration of the psychoneurological influence in every syndrome. We must remember that "Neurotics, subnormals, fall ill and fail with the same complexes that sound, or normal people, struggle with and succeed."

I say unto you, that, in the examination of a patient, it is as important to take into careful consideration the psychoneurotic element in the case, as it is to take into consideration the temperature, pulse, blood pressure and general appearance; in many obscure cases, more so.

It is not enough to say that there is a psychological element in every syndrome; but we should surely go further—we should determine the character of the pathogenesis, and determine to what degree such psychological element effects the diagnosis, curative procedure and prognosis in the case under observation. This work is often much more difficult than the approved physical examinations; for we must not only be able to reach the superficial conscious, but must be able to penetrate to the realm of the subconscious and bring to the surface experiences and thoughts that the patients have tried hard to forget and would conceal from their very selves.

There are probably no psychoneurotic cases that are entirely free from some physical disturbance. When a nervous case has reached the importance of real consideration, there is usually some congenital anatomical deficiency or anatomical pathological development and always some physiological dysfunction. Years of psychoneurotic influence leave scars that are not always to be effaced.

The psychiatrist, the surgeon, the internist and the gynecologist need have no mental conflict in these matters, but will find a unanimity of action conducive to ultimate success. There will be fewer diagnostic exploratory laparotomies, fewer gastroenterostomies for psychic pylorospasm, and fewer normal ovaries investigated, if the psychoneurological elements in diagnosis are properly considered.

The proper consideration of early disbehaviors would probably reduce the number of prodigies, but would certainly diminish the number of dementias with which our asylums for the insane are filled.

It will be seen from the foregoing that, while a psychosis or a psychoneurosis, per se, is not so serious as to be apt to result in death, through its dystrophic influence on the glandular system, individually and collectively, grave results do often follow. The early importance of the arresting of injurious psychic influences is manifestly apparent.

Maurice Craig, the English authority, has this to say in his book on nerve exhaustion: "The want of balance between the endocrine system of glands becomes increasingly important the longer a case of functional nerve disorder lasts, for there is

a grave danger that the emotions, acting upon the secretions of the glands, may set up a sympathetic response, and the result may be a vicious circle."

We will have time to take up but one of the subjects embodied in the foregoing remarks, so we will consider briefly the one that stands at the head of the list: PSYCHOSES.

As I have stated above, I doubt if psychosis, as an independent entity, exists. It has been said by a great master of the subject, "A normal *vita sexualis* and you have normal mentality." In this matter due consideration of eroticisms is not enough. The anatomical characteristics and pathological influences on the gonads must have due consideration. It is true that in some of our psychotic manifestations we are unable to detect physical influences. In all such cases, I must confess, I have always felt that somewhere my diagnostic technic was at fault. Independent psychoses may be looked for in cases of hysteria, astasias, aphasias and phobias. After a long period of observation, I can think of but one case where a hysterical manifestation was proven apparently free from anatomical or pathological influences. A girl of fifteen had a series of hysterical paroxysms for which no reason could be assigned. It afterward developed that she had fallen in love with a man employed on her father's plantation, and the prospect of permanent separation constituted sufficient psychic trauma to throw her psyche out of balance. She afterward married the man of whom she was enamoured, bore him ten children, and now, at the age of sixty, is a healthy grandmother with numerous progeny. If there was any glandular dystrophy or physical defect in this case, it was not apparent.

Another case of psychic or phantom pregnancy went to term of expectancy and psychic labor. During the nine months, menstruation was absent or very scant. A careful examination under anesthesia, showed a very small uterus, with apparently normal ovaries. The menstruation returned to the twenty-eight day, three day cycle, after she was convinced of the nonpregnancy. This woman was very desirous of a child for financial reasons. Her mental level was low; the physical conditions must be taken into account.

Here we have a woman so mentally impressed with a fixed idea—an idea born of an ardent desire—that it deluded her to such an extent that she actually simulated the pangs of labor and made strenuous efforts for the expulsion of a fetus. This gives us some idea of what psychoneuro-

ses may do and what influence they may have as an entity, and their importance in the consideration of medical and surgical syndromes.

CONCLUSIONS

Psychoneuroses do exist as an entity. They have an important place in medical and surgical syndromes.

Psychoneuroses materially influence the behavior of an individual, and may produce a grave endocrine dystrophy.

OBSTETRICAL CASE WITH MANY COMPLICATIONS

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Phoenix, Arizona

(Presented before the Staff Meeting of the St. Joseph's Hospital, at the regular monthly meeting on March 12, 1928).

Case No. 12577: Referred to me by her family physician on June 30, 1927, for obstetrical care. At that time she was twenty-six years old, had been married nine years, and was in her fifth pregnancy, having had one miscarriage. She was an adopted child and had one full brother alive and well. The rest of her family history was unknown. She was not sure about the ordinary diseases of childhood, but had black measles, she states, while young. Last winter she had a good deal of indigestion and, before that, gives a history of pain over the appendix after the last baby three years ago.

Her menstruation began at thirteen, was of the twenty-eight-day type, lasting five to six days with a moderate flow and without pain. She has three children alive and well. The first labor, eight and one-half years ago, was terminated by instruments with resulting laceration. The birth weight of these children ranges from seven and one-half to ten and one-half pounds. She had had one miscarriage at three months between the last two children, cause undetermined. There is nothing else of note in her past history.

The date of her last menstruation was indefinite. She complained of considerable malaise and seemed anxious to have an abortion done, saying that she had a premonition of disaster if she went on to term.

Physical examination was essentially negative, showing a short, moderately stocky woman in good health. The tonsils were present but not diseased. Most of her teeth had been replaced by considerable plate work. Blood pressure was 118-64 with heart and lungs normal. There was some tenderness over the appendix, and for a time, the advisability of removing this organ was considered but later it ceased giving trouble. The pelvis was measured inside and out and found to be normal. The uterus was approximately the size of a two and one half months pregnancy. There was noted varicosity of the veins in the right leg and a few enlarged veins could be seen in the left thigh. The urine was negative. She was seen at intervals of not longer than two weeks, except on one or two occasions when she neglected to keep her appointments.

During the last part of November, she scratched a pimple on the left shin on the mesial surface at the junction of the lower and middle thirds. This became slightly infected and, during the first part of December was treated with the result that the inflammatory condition subsided, leaving only a persistent ulcer about five millimeters across and about three millimeters deep, having the charac-

teristic appearance of a varicose ulcer. Elevation and rest of the leg was then supplemented with the Peruvian balsam, zinc button and pressure method of treatment with almost complete healing at the time she entered the hospital.

On the morning of December 24, 1927, I was called to see this patient in her home and found her complaining of earache on the right side, pain in the right mastoid tip, and was told that she had caught cold the night before. Her temperature was 100°, pulse 80, the pharynx was moderately injected and a mild coryza existed. The right eardrum was somewhat reddened and bulging. The skin over the right mastoid tip was puffy and tenderness was elicited on moderate pressure. Her family physician was immediately notified and he asked that an eye, ear, nose and throat man be called to see her immediately. The family was told that immediate and skilled treatment was desired because of the gravity of the advent of an infection in the body near term, since the patient was then about eight and one-half months pregnant. The drum was lanced that day and a bloody serum evacuated.

On Christmas day, the patient was again seen at home during the forenoon and was found to have had a very comfortable night. During the forenoon she had developed pain over the right mastoid area with indefinite pain in the chest, back and legs. She then had a temperature of 102.4-5°, pulse 148, and the right ear was discharging thin, brownish serum in large quantities. Feeble contractions of the uterus were present. The fetus was in O.D.P. with the head movable in the inlet. Fetal heart tones were 176 and feeble. The patient was sent immediately into the hospital, where she seemed to improve during the afternoon. She had no cough or respiratory difficulty, although she had a slight amount of sputum of the same appearance as the discharge from the ear. Her mental reaction seemed sluggish. Examination of the chest showed a few moist rales scattered over both bases posteriorly but without demonstrable alteration of the other physical signs. Her temperature went down to 99°, pulse 120, respirations 26. Her family physician and the otologist kept in close contact with the case and the patient seemed to improve except for an even more sluggish mental reaction than she had the day before. The temperature rose to 102°, pulse 130, respirations 28, during the night. She complained bitterly of sharp pain in the lumbar region and upon rectal examination was found to have two and one-half centimeters cervical dilatation. Because of her extreme restlessness and evidence of pain, she was given morphine, one-fourth grain, hypodermically. In the morning she seemed markedly improved, with normal temperature, pulse 112, respiration 30. That noon she had a small bloody showing and began to have weak uterine contractions early in the afternoon. These continued weak and irregular, the fetal heart tones were progressively weaker, and an infant which did not breathe was spontaneously delivered after a twenty-minute second stage without great pain, at 6:45 p. m. A sero-sanguinous fluid streamed from the baby's mouth; the liquor amnii was likewise blood-tinged and similar fluid was aspirated from the child's trachea with a tracheal catheter. It was impossible to insufflate the child's lungs and it did not respond to alpha-lobelin. The heart was beating slowly and weakly and in a few minutes ceased altogether and did not respond to adrenalin. The child's skin was dotted with numerous very small vesicles. In spite of the woman's absence of high temperature, a poor prognosis was again given to the family. Because of pain in

the right chest, her physician ordered that side strapped with adhesive. Mustard plasters were applied, fluids were forced and routine treatment for a pneumonia begun. Her heart continued weak with a fast pulse. Respiration became labored and during the night stimulation was necessary during spells of cyanosis and dyspnea. The temperature rose to 102°, pulse 130 and above, respirations 48 to 52. The right base posteriorly began to show the typical signs of consolidation and the sputum became blood-streaked. From then on, her condition became progressively worse with a steadily mounting temperature and pulse rate, cough, perspiration, cyanosis, and semi-delirium. Tuesday, December 27th, her condition became steadily more critical with the heart becoming weaker and the pulse mounting in spite of digitalis and stimulating treatment. Soon after midnight, early Tuesday morning, death seemed imminent but she responded to stimulants and a mustard pack and improved for a few hours, but then became comatose, cyanotic, pulse not obtainable at the wrist, and died at 10:45 a. m., with failure of the right heart.

The cultures from the right ear were reported as having no growth except saprophytic organisms. Vedder's starch medium was all that was obtainable in the hospital the Sunday morning the cultures were taken. It might also be of interest to state that, three weeks before, there was a bad respiratory infection among the children in the home.

COMMENT

The outcome of this case is especially depressing because of the death of both the mother and child. It is of vital interest, certainly to the obstetrician, to whom it seems a terrible penalty for a woman to pay in her natural, if not always normal, function of becoming a mother, by virtue of which she becomes more liable to such disease. The internist and the otologist are likewise concerned.

From the obstetrical standpoint, infections of the respiratory tract proper with added complications, in the ear, and then pneumonia, are dreaded conditions to find in a pregnant woman. In pneumonia alone, a mortality rate as high as sixty per cent is frequently reported, especially in epimortality rates where the pregnancy is not demics. Most authorities report lower interrupted. At or near term, delivery of the child must be considered and it is felt that the rapid emptying of the uterus is the method of choice.

The question of a cesarean section was answered in the negative in this case because of the acute respiratory infection with discharging ear and early evidence of fetal distress, coming probably from toxemia but possibly from a blood-stream infection in the mother which was passing through into the fetal circulation. The pneumonia, we are sure, did not develop until the day of her delivery although it is without question that the organism was in the lungs and an incipient condition present. It was felt that

she would have a better chance of fighting the infection if she was disturbed as little as possible, especially since her labors had always been easy with the exception of the first. Her resistance was obviously very low, the infection a virulent one with overwhelming toxemia and, from the general appearance of the woman or from intuition, if there is such a thing, I felt from the first that the prognosis was bad.

THE YAVAPAI POSTGRADUATE STUDY PLAN TO EXTEND ITS SCOPE

After months of consideration and conference, the cooperation of the Arizona State Medical Association has been secured in extending the benefits of the Yavapai County Postgraduate Study plan through the pages of this journal. The method of procedure will be as follows:

The cases selected for study in the Yavapai County Society will be turned over to this journal well in advance of the meetings at which they are to be discussed. The Case Histories will be published, just as the two are published below. Opportunity will be given to any county society in Arizona or New Mexico to study and discuss these cases, to submit their discussions or conclusions to this journal. When these discussions are assembled, they will be published, along with the discussions of Yavapai County-Fort Whipple groups, and following those, the discussions of Dr. Cabot and his associates in the Massachusetts General Hospital.

There are presented, herewith, two cases which have already been discussed in Yavapai County. County societies, clinic groups, hospital staffs, or individuals, in Arizona, New Mexico or Western Texas, are invited to send in discussions on the diagnosis of these cases. Such discussions, or diagnostic conclusions will be published next month, together with the discussions of the Yavapai County groups, and Dr. Cabot's discussions.

It is possible to develop a very interesting and instructive open forum in clinical diagnosis by this method, and you are invited to participate:

CASE NO. 1

A rubber factory operative twenty-three years old was sent from the Out-Patient South Medical Department December 23 for study of a large sloughing ulceration of the lower lip.

Three weeks before admission he noticed pus drainage and soreness around the gum line in the region of the first and second right molars. The trouble progressed forward. A week before admission three lower anterior teeth were extracted. Since that time the infection had spread, involving the lower lip, and keeping him in such agony that he got little sleep. He staunchly main-

tained that a venereal origin of the trouble was impossible. Dark field examination in the Out-Patient Department showed numerous spiral organisms, most of them of the Vincent type, but some strongly suggestive of *treponema pallidum*.

His past history and family history were negative except that his mother died of cancer. He denied the use of alcohol.

Clinical examination showed a poorly developed, emaciated, very anemic looking young man, evidently suffering. Both eyes showed a yellow mucoid exudate. The lip in front of the cavities of the three lower front teeth on the right was edematous, and from base to outer skin margin was sloughing, in spots black. He could not open his mouth wide enough for examination of the inside. There seemed to be no free pus in the slough, but it had a yellowish appearance for the most part. A small area of skin adjoining this ulceration was excoriated. Heart normal; a soft blowing systolic murmur, best heard at the apex. Blood pressure 114/68. Prolonged sighing expiration at the right apex, not above physiological; a few coarse bronchial rales through the lung. The rest of the examination was negative except for doubtful hemorrhoids.

Urine essentially normal at eleven examinations. Renal function 50 per cent. Blood: 8,500 to 3,500 leucocytes, polynuclears 55 to 12 per cent., hemoglobin 80 (?) to 50 per cent., reds 3,700,000 to 2,180,000; entrance smear, moderate achromia, slight poikilocytosis and anisocytosis, platelets normal; later smears showed rare to occasional tailed forms, macrocytes and microcytes, one stippled cell to occasional stippled cells, platelets decreased and very abnormal, frequently huge, and deeply stained. Reticulated cells 1.3 to 9 per cent. Differential count January 24, polynuclears 12 per cent., large lymphocytes 6 per cent., lymphocytes 8 per cent., mononuclears 11 per cent., atypical lymphocytes 9 per cent., atypical mononuclears 38 per cent., atypical polynuclears 4 per cent., unclassified 11 per cent., no eosinophils or basophils, 1 per cent, blasts (lymphoblasts?). Many red cells with Isaac's granules. Wassermann negative. Two blood cultures negative. Non-protein nitrogen 29. Coagulation time 20 to 30 minutes. Icterus index 5. Clot retraction normal. Uric acid 2.1. Creatinin 1.5. Fasting contents of stomach: no free hydrochloric acid, total acidity 10, guaiac negative. Test meal: no free hydrochloric acid, total acidity, 5, guaiac negative. Stools; guaiac negative; no lead. Dark field examination showed abundant Vincent's organism but no *treponema pallidum*.

X-rays of a barium meal and of the skull and long bones showed no evidence of pathology. The left antrum was less radian than usual. The frontal sinuses were underdeveloped. There was a small area of rarefaction about the root of an upper incisor. The heart shadow was round and large across the auricle. The hilus shadow was moderately increased on both sides. The larger lung markings were rather prominent.

Consultations. Oculist: "Patient has epiphora which is probably secondary to some nasal disturbance." Internist: "I do not think this is lead or banzol. It may be the result of arsenicals. His pain seems like a hypermotile gastro-intestinal tract rather than a hypertonic one. I would try nitroglycerin,—if it is hypermotility it will do no good, but it will relieve hypertonicity. Sodium thiosulphate may help if it is arsenic." Laryngologist: "Thick and deviated septum with slight crusting. Transillumination negative. Later submucous resection?" Second laryngologist: "I do not think deviated septum is causing dacryocystitis."

Temperature 97.8°, with periods of special elevation January 12, February 4 to 9 and 11 to 15.

Pulse 70 to 130. Respirations normal except for 29 January 13.

The patient had severe abdominal pain at night, relieved by an enema. December 20 he was given 0.45 grains of neodiarsenol. The lip lesion was irrigated daily. By December 27 it was dry and black but improving, and the edema was disappearing. There had been two sloughs from inside the lip. On the outside skin surface the lesion appeared to be spreading. On December 28 a fissure was forming to the right side of the necrotic area reaching to the bottom of the lesion and beginning to undermine the area inferiorly also. It appeared that the old lesion would slough en masse. Another injection of neodiarsenol was given. The patient's general condition and spirits improved. January 4 a part of the lip sloughed. The lip was strapped. The patient seemed to be more pale than at admission.

January examination showed extremely marked pyorrhea, teeth in wretched condition and undescended left testicle. Quartz light treatment was started January 12 and continued until his discharge. The abdominal cramps each night continued to be worse until he had a barium meal, when they stopped for ten days. Dental prophylaxis was started. After the gastric analysis dilute hydrochloric acid after meals was started. February 11 transfusion of 550 cubic centimeters of blood was done. Fourteen days later he was running a septic temperature and had diminished breath sounds and bronchial breathing at the right base behind near the vertebrae. A week later the temperature was normal, the red count and the hemoglobin rising. February 27 he was transferred to the Eye and Infirmary for plastic operation.

At the Infirmary he was not considered to be in a condition to warrant operation. The day after admission he began to run a temperature of 100° to 101°, later reaching 102°. Later in the week he seemed very lethargic and depressed. He refused to eat, frequently fell out of bed or climbed out, and gave no satisfactory rational replies upon questioning. An area of necrosis developed around the left upper teeth. The breath was very foul smelling. He also developed a conjunctivitis. X-ray showed pus in the left ethmoid and antrum, the ethmoids narrow, the frontal sinuses undeveloped. There was marked pyorrhea. It was thought the pain and temperature came from the tooth infection.

March 6 he was readmitted to the Massachusetts General Hospital.

On clinical examination he was in semi-coma but could answer some questions with effort. The skin showed marked pallor. The mouth was red from mercurochrome. Sclerae injected; sticky exudate on eyelids. Eye movements seemed normal. Slight reddening about the right orbit. Right mastoid reddened. Tenderness over both antra, more on the left. Breath very foul. Upper teeth on the left very loose. Molar regions soft. A necrotic area on the left side of the hard palate near the molars. Throat red. Lungs apparently clear. Heart as before, with loud second sounds at the base. Right rectus rigid. Doubtful tenderness. Rectal examination showed doubtful tenderness on the right. Slight anterior bowing of the shins; rounded margins. Reflexes active. Sustained ankle clonus. Fundi negative.

Urine not remarkable. Blood: leucocytes 9,550 at admission, 15,300 March 13, 5,200 March 17, 20,400 March 26, 8,150 April 7, 20,000 April 17; polynuclears 1 per cent, (with 9 per cent atypical polynuclears) to 64 per cent; hemoglobin 45 to 35 per cent, reds 2,800,000 to 1,120,000; at entrance marked achromia, moderate poikilocytosis and an-

isocytosis, some stippling, platelets abnormal. March 23 little or no achromia, platelets normal or slightly reduced, frequently very large, very abnormal staining. April 17 slight achromia, anisocytosis and poikilocytosis, platelets diminished. Reticulated cells 3 to 1 per cent. Blood culture, no growth. Stools negative.

Temperature elevated throughout, 98.5° to 105°, with periods of special elevation March 6 to 11, March 22 to 28 and April 9 to 15. Pulse 65 to 150. Respirations 17 to 33.

Two throat consultants thought that owing to the condition of the nose the "pus in the left antrum" seen by x-ray was chronic rather than acute. It was thought the antrum should be irrigated if the patient became rational enough to make it safe. They felt he was in no condition to have operative work done. Dental care was continued.

A medical consultant did not know whether x-ray treatment should be attempted unless the nature of the lesion was definitely determined.

The night of admission the patient seemed better and the temperature fell from 105° to 102°. March 10 two left upper bicusps were extracted. The next day the patient was much better. March 16 washing of the left antrum showed a normal return flow of clear fluid. The spleen was easily palpable March 21 for the first time. The ulcerations in the mouth advanced rapidly. The next day the side of the face over the left antrum was swollen and slightly tender. There was a slough measuring 3 to 4 centimeters on the roof of the mouth to the left. There were surprisingly few glands, none of importance. The mediastinum was not dull. The lungs were negative. The spleen could be felt two or three centimeters below the costal margin. The liver was not enlarged. The left testis while undescended did not suggest tumor.

March 26 a barium enema showed the cecum fixed, apparently adherent posteriorly. There was no definite evidence of organic disease of the colon.

March 27 another throat consultant thought the process had probably started in the roof of the mouth, inasmuch as processes primary in the antrum as a rule protrude through the canine fossa.

March 29 a biopsy was done. Fragments from the palate showed a structure too necrotic for diagnosis.

April 4 three throat consultants were unable to make a diagnosis. They advised removal of teeth and sloughing tumor, but not operation on the accessory sinuses. They suggested transfusion and biopsy.

April 8 he had tooth extraction and biopsy of small fragments of the upper jaw at the Eye and Ear Infirmary. The biopsy showed a chronic inflammatory process. April 12 transfusion was done. The following night the left cheek showed tense pitting edema and was very tender. The mouth was in a horrible condition. There was a gangrenous odor to the breath. April 20 the patient died.

CASE II.

An unmarried Canadian girl of twenty, an operative in a rubber shoe factory, entered the hospital April 7, complaining of profuse bleeding from the nose for two days.

Since childhood she had been subject to frequent nosebleeds, always easily stopped and becoming much less frequent until the present illness. Eight months before admission she began work in the rubber factory. Since January, four months before admission, she had felt very tired by noon every day, and the smell of the cementing substances with which she worked made her feel

nauseated. Three months before admission she had a cold in her head and chest which cleared up in two weeks. After it she gradually grew weaker and lost interest in things. Two months before admission she had a nosebleed from the right nostril, easily stopped. A month before admission her menstruation lasted three days longer than usual, and the flow was unusually profuse. Two weeks before admission her gums, especially on the right and at the back, became sore and later swollen. After the application of argyrol and something else by a dentist there was free bleeding for four hours from the right upper jaw with clot formation in her mouth. The gums continued to be sore though not so swollen. For two weeks she had felt dizzy, especially on bending over. April 2 her employer sent her home because she was "all run down and needed a rest." April 6 on blowing her nose she had a sudden continuous flow of blood from both nostrils, with large clots. After seven hours a physician was called and stopped the bleeding with pledgets. When he removed these the morning of admission the bleeding recurred.

The patient's work was cementing rubber heels. Not infrequently other girls doing this work felt ill and asked to go home. She thought some of them complained of stomach trouble. They all seemed to tire easily.

Her family history shows nothing of significance except that in boyhood one brother had frequent nosebleeds, easily stopped.

At the age of ten the patient was ill in bed a month with influenza. She had always been well but never very rugged. Four years before admission she came from Canada to a Massachusetts mill city. At this time she weighed 122 pounds, her best weight. Recently her usual weight had been 105. Four years ago she had "growing pains" in the backs of her legs. A year before admission she had an "abscess" in her right ear for a week. She occasionally urinated once or twice at night. Her brother thought she did not get enough sleep. He said she had had a cough off and on all winter, took patent medicines occasionally without relief, and not infrequently, especially during the past month, had not been able to eat her supper.

Clinical examination showed a very pale, small girl lying propped up in bed. Breath very repulsive, suggesting decay and Vincent's infection. Diffuse pigmentation of the skin. Many large purplish spots on the lower extremities. Straight over the hips, suggesting marked loss of weight. Tonsils inflamed. One hemorrhagic spot on the hard palate. Very marked pyorrhea. Hemorrhagic edges to several teeth. Heart slightly enlarged, left border of dullness 8.5 centimeters from midsternum, one centimeter outside the midclavicular line. Right border not recorded. Supercardiac dullness 5 centimeters. A systolic murmur at the apex. Blood pressure 110/70—100/82. Increased breath sounds at the apices of both lungs. Abdomen, extremities and reflexes normal. Examination of the fundi showed the left disc margin hazy, especially the nasal margin.

Urine: 32 to 63 ounces smoky, turbid, cloudy at four examinations, gross blood at a fifth. (there was a vaginal bleeding throughout her stay in the hospital, specific gravity 1.018 to 1.014, a very slight trace to a large trace of albumin at all, red cells in three specimens of sediment, leucocytes in two.

Blood at entrance: 1,200 leucocytes, 16 per cent. polynuclears, 76 per cent. lymphocytes, 8 per cent. large mononuclears, hemoglobin 40 per cent., reds, 715,000; some anisocytosis, moderate achromia, no poikilocytosis, polychromatophilia, stippling or normoblasts; platelets practically absent; no reticulated cells; bleeding time 16 minutes. Was-

sermann negative. Nonprotein nitrogen 26 milligrams. Widal negative. Clotting time 12 to 19 minutes. Stools: gross blood and strongly positive guaiac April 8. Two blood clots two inches long April 10. Three other specimens showed no gross blood, guaiac negative.

X-ray showed the sinuses unusually small. The antra were much less than normally radiant. It was thought this might be anatomical. The right mastoid cells were slightly less radiant than the left. The bones of the jaws were essentially negative.

Temperature 100.3 to 105.8°, pulse 100 to 162. respirations 20 to 48.

A dentist found evidence of infection with Vincent's organism, with a possible complication due to purpura or some other blood condition.

Transfusions were done April 7, 9, 11, 14, 16, 20, 22 and 24, 600 cubic centimeters of blood being given each time April 7 to 20, 1000 cubic centimeters April 22 and 24. Following the transfusion April 11 there was a slight cough. Quartz lamp treatment was started that day and given April 11, 19, and daily thereafter. Repeated blood studies showed steady rise in the red count and the hemoglobin coincident with an irregularly falling leucocyte count—1000 April 8 and 9, 850 April 11, 925 April 13, 600 April 20. In all smears the platelets and reticulocytes were markedly reduced. Polymorphonuclears were absent in two smears, 1 per cent in a third, few in a fourth, irregular in outline, vaccolated, coarsely granular. April 12 ten cubic centimeters of thromboplastin substance was given. April 14 the right tonsil was large and red. April 16 there was bleeding from the right nostril, requiring packing. 20 cubic centimeters of thromboplastin was given. Two days later the nosebleed recurred, again requiring packing. A throat consultant found acute infection of the right tonsil, not severe. April 20 the temperature was 104.8°. The following day there was bilateral mastoid tenderness. An aurist did a negative right paracentesis. The bleeding time was fifteen minutes. The platelets were very much reduced. The leucocyte count was 1000 against 600 the day before. Later there was slight seropurulent discharge from the right ear. The temperature showed daily wide swinging with afternoon drop.

April 22 1000 cubic centimeters of blood was transfused. Twenty minutes afterwards the leucocytes were 500-400, the reds 4,368,000, the hemoglobin 80 per cent. The platelets were more numerous than they had been, most fields showing two or three, some five or six. The red cells were normal in size and shape. In two smears 16 cells were seen, 7 polymorphonuclears, very clear and granular in a few instances, 9 lymphocytes. Two hours after transfusion the leucocytes were 400.

April 24 the patient had a large hemorrhage from the vagina and the lungs losing 800 to 1000 cubic centimeters of blood. 1000 cubic centimeters was transfused. Her condition was very poor that evening and the next. She complained of some pain in the left lower quadrant, flank, and costovertebral angle. There was some spasm in this region. April 26 she died.

WANTED—We have several well-trained practical laboratory technicians with additional training in physiotherapy graduating from our school of public health May 15; physicians, hospitals, clinics and health departments desiring such service can secure it by writing immediately. Address, Dr. L. H. South, Director Bureau Bacteriology, Kentucky State Board of Health, 532 West Main Street, Louisville, Ky.

Trained nurse, stenographer, desires position to assist or secretary to physician, references. M. V. Braun, Apt. 7, 1200 N. Oregon St., El Paso, Texas.

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ARIZONA STATE MEDICAL ASSOCIATION

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Jerome, Arizona

(Address of the President, before the Thirty-seventh Annual Session of the Association, held in Tucson, April 19-21, 1928.)

Without a doubt, everyone who has served this Medical Association as President has had ambitions to make that service reflect with credit on his work. I am not going to start out by making any rash promises, or, in fact, any promises at all. However, I will state that, as far as my interest, energy, sincere effort, and time are concerned, in trying to do something in a constructive way for the Society, I will give you all I have.

I wish at this time to bring to your attention some of the matters which seem of importance to me. Anything that I have in mind or might say with regard to our laws, or what has been done toward changing these laws, will not be in the form of criticism.

In the past fifteen or twenty years, the medical practice law has changed, but, I am sure, not altogether for the best interests of regular scientific medicine. At the present time our Board of Medical Examiners consists of two allopaths, two homeopaths, one eclectic, and one osteopath. From the best sources of information, the impression is that this arrangement of the Board is as good as any, the trouble being mostly in law enforcement. Due to the wonderful work of the American Medical Association and the American College of Surgeons, the standards of our different medical schools have progressed so that at present we have only nine Class B and C schools. Of these

nine, we recognize four, and allow their graduates to take our state board examination. One of these four, the Kansas City College of Medicine and Surgery, was involved in the diploma-mill scandal of 1923 and 1924.

During the past year we were confronted with legislation in the form of the Basic Science Bill. Dr. Bridge states in his report that he thought the failure of passage was due to the split between the government forces and their opponents. This may have been true, but I felt, and still do feel, that this failure of passage was due to the lack of concentrated action by our profession. Our lack of knowledge concerning the Basic Science Bill, as well as our present Medical Practice Act, made a good many of us apparently indifferent. I frankly confess that I was among this group.

It will be our endeavor this year to ascertain what the Association wants and will support in the way of revision of the present Medical Practice Act. It may be that the Basic Science Bill will solve the difficulties now existing. In any event, the committee on public policy, together with representatives from the different county associations, will start functioning immediately. They will submit some constructive legislation to the different county societies, subject to their constructive criticism, eliciting all objections, so that in the end this committee will have something definite that we will all be united on and working for. It is a problem we have to do, for, by so doing, we will give the uneducated public the benefit of the great possibilities of modern scientific medicine. When I say uneducated public, I mean uneducated in the

sense of medicine and its problems. It has been stated that the three absolutely essential requirements of medical men are honesty, good judgment and scientific training. The greatest of these, in my opinion, is honesty. These facts should be recognized by the public as well as the profession. If we can educate the public to understand and believe that we are honest and sincere, that our chief thought is for their welfare, then some of our problems will be easier to solve. We have eight months before the meeting of the next legislature, and it seems to me if we all will do our best, something can be done the early part of next year.

Another very important matter is to revive some interest in medical meetings in the counties and towns of the state. Maricopa, Cochise, Pima, Gila, Santa Cruz, Yuma, and the Prescott end of Yavapai County are going over in good shape. I know the Jerome and Verde Valley side of Yavapai County is dead. In other sparsely settled counties, such as Mohave, Coconino, Navajo, Apache, Greenlee, Graham and Pinal counties, there may be very good reasons for inactivity. We hope, through the council, to have district meetings to start with in the different inactive sections, and, if possible, to start some form of study, preferably competitive. The Yavapai County plan, as you know, is the Cabot Case History study, with the final summary by Cabot and autopsy findings. Any of you men who have heard one of these cases presented by the Prescott men will appreciate how very interesting it is, and how much good can be gotten out of it. This year the Yavapai County Medical Society had three groups in competition. The interest and competition was so keen that, of the three groups represented, all had 100 per cent attendance for all meetings this year. This should be enough to make us all stop and take notice; any form of study that can bring a group of medical men to each meeting that it is possible for them to attend, surely must have something worth while and of great interest.

I am very sorry to report that we, on the Jerome side, have permitted the thirty-four or thirty-five miles to place us in the dead class, but I have hopes that next year we will have every third meeting in Jerome, as we have had nine members of our county society on our side of the hill. I feel confident that, in a short time, we will have the same interest that Prescott has, so that the jump over the hill will be easy to make.

Here let me bring in something that has been accomplished this year. Dr. William

Todt, councillor for the Northern District, put over a one-day meeting at Flagstaff last month, with an attendance of twenty-three men. Mohave, Coconino and Yavapai counties were represented. All enjoyed an instructive program, with good discussions, and the hospitality of Coconino County. The meeting was a very successful one, more than any one of us had hoped for. Dr. Todt and the men of Coconino County are to be complimented, for it is the beginning of regular meetings of the whole Northern District. At the next meeting, which will be held sometime in May, we hope to include Apache County, and at that time set definite dates and places for the meetings. If we can start with even six meetings a year, it will surely be better than the past of no meetings at all.

Any constructive work that is to be accomplished for our society can not be done by the individual or committees. It means that all of us must realize we are necessary in bringing this about. Too often we find ourselves in a self-satisfied position; we are established and cease to worry, but nevertheless, with the advance in practice of modern medicine, a little stimulating will do us all good. I am, therefore, making a plea for co-operation, so that, when matters are brought to your attention, they may have your help and consideration, and not an attitude of criticism.

In closing, I wish to call your attention to a matter that may need discussion and whatever action you may feel advisable; namely, the program committee. At present the president-elect is chairman of this committee. I wish to thank the men on the present committee for the excellent program they have gotten together. However, it occurred to me that either a standing program committee should be appointed who would have all the details at their finger tips, or the president or president-elect appoint one man from the county society holding the next meeting, and he alone be held responsible.

PROPOSED NATIONAL SANATORIUM FOR TUBERCULOUS CHILDREN

At a much advertised public meeting held in Phoenix, the latter part of February, the movement to establish a national sanatorium for tuberculous children at Springerville, in northern Arizona, was launched. From all reports the meeting fell flat, though a nationally known lecturer and several Hollywood stars were brought to Phoenix to draw a crowd. Little encouragement is given the movement from well-informed medical authorities, and the entire scheme

has the aspects of a promotion plan with the chief advantages accruing to the promoters. Certainly, from a medical viewpoint, little advantage can be seen for those chiefly interested,—the children with tuberculosis. The Maricopa County Medical Society, after giving the matter consideration, adopted the following resolutions, which would seem to be in accord with the best informed medical opinion:

Whereas, publicity is being given to the proposal to build a national sanatorium for tuberculous children in Arizona, with little or no consideration to the medical phases of the matter; therefore,

Be it resolved by the Maricopa County Medical Society—

(1) That we are not interested in the financial or political features of this movement, but purely in its medical aspects.

(2) We agree with the principles announced by the National Tuberculosis Association and approved by the Council on Medical Education and Hospitals of the American Medical Association, which principles are as follows:

(a) The care of the tuberculous is primarily a local and state problem.

(b) The number of beds for children is adequate in some sections and beds are being provided annually in many parts of the country.

(c) A national sanatorium for children would cost more to maintain on account of transportation and educational requirements.

(d) Large organizations would be required to examine, report upon and transport children to a national sanatorium.

(e) It is improbable that such an institution would secure patients from the more populous sections of the country.

(3) We call attention to the well known fact that the climatic advantage to be gained by bringing children to the southwest is greatly overbalanced by the disadvantages accompanying the removal of children from their parents, homes and familiar surroundings. When conditions are such that the necessary hygienic surroundings cannot be secured in the home, local institutions are preferable, where the children may have contact with relatives and friends; these things are more necessary than climatic conditions in treating tuberculous children. One of the fundamental principles in tuberculosis of childhood is to avoid as far as possible treating the child as an invalid.

(4) The principle of removing tuberculous chil-

dren long distances from their homes for the purpose of securing hospital treatment or sanatorium regimen is entirely wrong. It is only sufficient to call attention to the fact that the most successful institutions handling tuberculosis in children in the United States are located in such eastern states as New York or New Jersey and there are similar institutions in many states. Where tuberculosis in a child is to be given the advantage of climatic change, the parents or near relatives should accompany the child and establish a home in the locality selected, and the sanatorium should be used only for special and more or less unusual conditions.

(5) For these reasons, the medical profession of Phoenix and Maricopa County desire to go on record as opposed to the movement to establish a national sanatorium for tuberculous children in Arizona.

ANNUAL BANQUET OF THE YAVAPAI COUNTY-FORT WHIPPLE DISCUSSION GROUP

On the evening of Friday, April 13th, the annual dinner of the Yavapai County Medical Society and Fort Whipple Hospital Staff was held in the private dining room of the Owl Restaurant. This is the occasion when the results of the discussion contest of the past six months are announced, and the losing teams are hosts to the winning team.

These two organizations combine their forces and divide them into three groups. During a period of six months, beginning this season on October 4th and closing on March 27th, they discuss clinical cases selected from Cabot's Case Histories, published in the Boston Medical & Surgical Journal (now The New England Journal of Medicine). At bi-monthly meetings two groups at each meeting discuss cases selected for them by three judges, and are judged on the excellence of their discussions by the same judges. They are allowed to study the cases in advance of the meetings but must speak extemporaneously when presenting discussions.

The judges for the season just past were



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Drs. DeWitt, Rene and Herrick. The members of the groups were as follows:

Group I—Drs. Benedict, Carlson, Devine, Gatterdam, Hedberg, Malone, Melick, Starns, Swetman and Yount.

Group II—Drs. Allee, Allen, Brooks, Hazel, Jones, Looney, Linn, Matschke, McNally, McWhirt, Thomas.

Group III—Drs. Bassett, Buck, Flinn, Loewy, Carter, Southworth, Sullivan, Taylor, Thigpen, Walsh.

During the period of the contest each group discussed six cases, and was graded on the excellence of presentation, correctness of diagnosis, and evidence of study. The attendance of the members at the meetings also figured in the grades. Allowing excuse for unavoidable absence, such as sickness or attendance on emergency cases, each group registered **ONE HUNDRED PER CENT ATTENDANCE** of its members throughout the six months. They challenge any organization of medical men, anywhere, to show a better record.

The dinner was eaten without knowledge as to who would be the losers in the contest, since the judges had not yet announced their decisions. Several wagers were made during the dinner on the outcome, as result

of which one of the doctors not only had to pay but was several additional dollars out, since he proved to be on one of the losing teams.

In the outset of the program, Dr. H. T. Southworth read extracts from the Boston Medical & Surgical Journal, of recent date, which commented editorially on the Yavapai County method of using these histories. This editorial has some interesting suggestions and is reproduced herewith, for information of those interested:

I

Two of the many methods of using the Case Records have proved so successful that they deserve to be better known. One has been developed by the staff of the Newton Hospital, Newton, Massachusetts, the other by the Yavapai County Medical Society, Arizona. Both are products of a number of years of evolution. Both owe much to the experimental method. True offspring of progressive science, they have both proved their adaptation to life by maintaining a notable degree of enthusiasm in the meetings through an unusual number of years. The Westerners have with great ingenuity developed a teamplay method which has the zest of a game,—all the stimulus of competition with the minimum of its disadvantages. For the benefit of the many other groups in which the Case Records are used, from handfuls of students in their rooms to formal meetings of hospital staffs and medical societies, we report these two methods. Whatever is lasting, like whatever is popular is worthy of attention.

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Medical Director

"Several years ago," writes Dr. George L. West of Newton, "I subscribed to the Cases, before their appearance in *The Boston Medical and Surgical Journal*. I soon became impressed with the practicability of using the cases in a clinical club. I then asked a few members of the staff to fit into the discussion.

"It has now become my practice to select such cases as lend themselves intrinsically to discussion and argument. There are generally two for each meeting. No member knows the date of the original issue of the cases except myself. The stenographer sends a multigraphed copy of the case minus the discussion and the post-mortem findings to the members several days in advance of the meeting. Two members are named as principals. Each principal presents his case as he pleases and defends himself in his discussion against the questions and objections which arise plentifully as he proceeds. He then makes his diagnosis and the other members criticize, and finally each man registers his opinion as to diagnosis. I then read to the club your discussion and diagnosis and the necropsy findings, which are then for the first time made known to the members.

"You will see that the club has had a continuous existence for several years. It now has a membership of thirty men and an average attendance of about twenty at its bimonthly meetings at the hospital.

"I modestly believe that the benefit from this particular method of study has been of positive effect in elevating the standard of medical practice at the hospital and in the city.

"It is a tribute to your development of the case method that a clinical club such as I have described can carry on with so much enthusiastic interest and benefit."

II

The western society has worked out a rather elaborate team system, described by Dr. C. E. Yount and Dr. Gale D. Allee in an article in *Southwestern Medicine*.^{*} By permission we publish extracts from this report of a most original and picturesque plan of work, full of the spirit of youth, its comradeship, its love of a game. In its earliest form it was started after nine years of experiment with various other plans of work. At the end of the first year the society felt that it had gained "more real benefit and more stimulus to better work from the systematic study of the Cabot Clinics than from any other method we have ever pursued." At the end of five more years there is still the vigorous growth of youth. The experience of the society has shown increased interest and harder study every year.

"In 1921 the members of the Yavapai County Medical Society residing in Prescott, in conjunction with the Medical Officers on duty in the U. S. V. B. Hospital at Fort Whipple determined to institute a course of post graduate study.

"After discussing various plans, it was decided to use the Case Records of the Massachusetts General Hospital. . . . Time has proved that our selection of the Cabot case histories was a wise choice. There is no other system of case records published which can be so readily adjusted to the plan of study which we have developed.

"During the past six years many schemes for presenting the Cabot cases have been tried out in an effort to improve our method and make our study more interesting. The changes which have resulted in an improved plan have been retained, the others dropped, and while we may not have attained standardization, we trust that we are rapidly approaching it. Certainly each year has shown increased interest and closer study on the part of the participants. The method used during the past

year is the fruit of mature experience and the end result of six years of evolution.

"At the beginning of the year all the doctors in the Yavapai County Medical Society and at Whipple are divided into three groups balanced as equally as possible as to the professional attainments, specialties and ability to 'talk on their feet.' Each group elects a leader or team captain. . . . At the remaining nine meetings two of the three groups, in rotation, meet each other in competition in the presentation of Cabot case histories, until each group has discussed six cases. The two competing groups are each given a case history, the two being as nearly equal in difficulty of solution as possible. The competitors are graded on the skill with which the case is presented and the accuracy of their diagnosis as compared with Dr. Cabot's and the necropsy findings.

"Each group is allowed thirty minutes, neither more nor less, for the discussion of the case assigned by the judges. The captain of each group decides as to how the case shall be presented by his group and who shall speak for his group. The only restriction placed upon him is that his group may not exceed thirty minutes and he must call upon each of his various group members an equal number of times in the year. After a group has concluded its discussion, one of the judges reads the discussion of Dr. Cabot and the report of the necropsy findings, after which the judges retire and prepare their rating of the group. The judges, three in number, are chosen at the beginning of the course and serve for one year.

"The grades given by the judges at each meeting are placed in a sealed envelope, which is then given into the custody of the secretary, who retains them until the end of the year, when they are all delivered to the judges, who determine the winning group. . . . The judges are also custodians of the *Boston Medical Journal* as it is received through the mail, and are charged with the duty of selecting the cases for discussion, having them mimeographed and distributed to members two weeks in advance of the meeting.

"Immediately after the close of the course of study an annual banquet is held at which, it is needless to add, the attendance is 100 per cent. After dinner each group captain is requested to tell how and why his group won. Then the Chairman of the board of judges announces the winning group. The two losing groups pay for the dinner. The winning group is, therefore, the guest of the two good losers. This year the winning group won by 11/100 of one per cent, and the lowest group was within one and one-half per cent of the winner.

RESULTS

(1) This year we had an average of twenty-one doctors at each meeting, or a general average of 99.5 per cent attendance for the three groups for the series of winter meetings. We mention with considerable pride this remarkable percentage for attendance and present it as evidence that we have developed an interesting plan for post graduate work.

(2) Men who at the beginning of the course could not get up on their feet and talk because of stage fright are now consuming the full time allotted to them, discussing their cases with zeal and enthusiasm.

(3) The division of the doctors into well balanced groups and placing these groups in competition with each other is believed to be an important feature of the scheme for study which we have developed, because it promotes fellowship and good feeling, a wonderful degree of cooperation, and stimulates each individual in the group to engage in close study in order that he may carry his share of the group burden.

(4) Last, but most important of all, this course of study has taught us carefully to evaluate and draw logical deductions from the data available, and we are confident that this training has made better doctors of all of us.

CONCLUSION

"... For nine evenings each winter since 1921 we have, figuratively speaking, transported Dr. Richard C. Cabot and his colleagues from the Massachusetts General Hospital, Boston, to Prescott, Arizona, at no greater cost than a subscription to the published Cabot Clinics, or the Boston Medical and Surgical Journal, plus the effort necessary to operate the plan just described. The effort would have been abortive years ago were it not for the fact that we have at Fort Whipple and in our County Society doctors with a genuine thirst for medical knowledge, a determination 'to know what others have known' and what others know, coupled with a will to do and an inherent compatibility which enables us to work together as a guild."

Southwestern Medicine announces that reports of these case discussions of the Yavapai County Medical Society are to be made a regular feature of that journal, commends the method to all county societies, and adds, "Such a type of meeting will be far more helpful in the development of diagnostic ability, clinical analysis, and management of patients than listening to any number of papers, no matter how eminent the authors may be."

* Vol. XI, page 431, October, 1927.

The Annual Rebuttal was then given by representatives of the three groups.

Dr. C. E. Yount, speaking for Group I, while admitting that they would likely lose the contest, presented several very excellent reasons for his unfavorable prediction.

Dr. Gale D. Allee, for Group II, told why they were certain of winning, and laid the foundation for a very graceful alibi, in the event his confidence should prove to be misplaced.

Dr. John W. Flinn, for Group III, said that his group would win, because they had so evidently presented the best discussion. He then spoke of the great benefit which had accrued to the members, and that there would be no losers in the contest, since all had secured so great gain.

Dr. Herrick, speaking for the judges, then announced the grades for the three groups, as follows:

Group I—89.620 per cent.

Group II—92.999 per cent.

Group III—93.222 per cent.

Group III were very cordially congratulated by the other groups, the decision of the judges meeting with general approval.

Dr. Charles M. Griffith, Medical Inspector, Veterans' Bureau, Washington, D. C., on a tour of hospitals in the west, gave a very interesting talk on the work of the Bureau, stressing the point that all their work was done under an advisory board of nationally known physicians and surgeons, with avoidance of bureaucratic control as far as possible. He praised the work of the Fort Whipple Hospital staff in the highest terms.

Dr. W. Warner Watkins, of Phoenix, the

invited speaker for the dinner, presented the subject of "Non Tuberculous Conditions in the Chest." This address was illustrated by original films shown on light box, covering almost every known type of inflammatory lung disease and newgrowth of the lungs, some rare and some very common. The recently inaugurated method of studying bronchiectasis by lipiodol injection was illustrated, showing the various stages of this condition from the earliest linear type to the most advanced saccular form.

About thirty members of this discussion group, with guests, were present on this very enjoyable occasion.

EL PASO COUNTY MEDICAL SOCIETY

March 26, 1928

A regular meeting of the El Paso County Medical Society was held Monday evening, March 16, 1928. The meeting was called to order at 8:15 p. m., by the President, Dr. E. J. Cummins, who announced that, inasmuch as Dr. Jones of the Mayo Clinic, the scheduled speaker for the evening, had been taken ill at San Antonio and was unable to make the trip to El Paso, the program had been gotten up very hurriedly that afternoon after the receipt of Dr. Jones' telegram.

In the absence of the Secretary, Dr. R.B.Hol-

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man volunteered to act in this capacity, which service was gratefully accepted.

DR. W. E. VANDEVERE presented a clinical case for discussion:

Male, age 55, came here from Tucumcari, N. M., had been to Hot Springs, N. M., taking baths for rheumatic pains in back and chest.

History: About four months ago pains started in back of neck and head, and felt stiff all over; has had poor appetite, lost over twenty pounds in weight in last two months; had all his teeth pulled two weeks ago; Wassermann, negative; urinalysis showed acid reaction; sugar, none; indican, none; microscopic examination, large hyaline and fine granular casts, small amount of mucus, few white blood cells. Blood examination: white count, 8400; polys, 71 per cent; small monos, 23 per cent; large monos, 6 per cent.

He said that he had had a swollen gland in left elbow, for which a doctor had given him some injection in the vein, and that it had disappeared. He complains of a lot of pain in the back of his head. Tonsils are red but not enlarged, and he states that he has never had a sore throat.

I am at a loss to know what the trouble is and would like to have you gentlemen examine him and see what you think about him.

DR. W. L. BROWN: I think it is Hodgkin's disease.

DR. J. W. LAWS: I think it is Hodgkin's disease but it would be well to see the condition of the mediastinum from a fluoroscopic examination or x-ray. The blood picture is not characteristic, but it certainly has the feeling and appearance of Hodgkin's disease. The blood picture of Hodgkin's disease varies, but usually shows a high white cell count.

DR. SMITH: My idea of Hodgkin's disease is that it is not a leukemia; the blood changes are not characteristic and you do not necessarily get changes in the white cells. Usually here is a marked anemia.

DR. CUMMINS: Dr. Vandevere asked me my opinion, and stated that, until he got the blood count, he thought it was Hodgkin's disease. I said that the blood count was exactly what would make me think it was Hodgkin's disease, as this is the typical kind of a count you get early in that disease.

Case Report, by DR. J. W. LAWS: Male, age 55, engaged in cotton business; has been sorting and grading cotton and states that cotton grown in middle and east Texas has been very sandy with considerable dust. States that he was well, up to about July 19, 1927, when he was taken ill with fever and cough and notice a wheezing in the left side of chest. He was treated for malaria; temperature was higher every other day; had some fever in the mornings but would generally have a chill and then fever would reach 101 in the afternoon. He was put to bed and in about three weeks the fever stopped and wheezing began. He attempted to work, but in four or five weeks had another attack of so-called malaria and was put to bed again for two or three weeks. Plasmodia were said to have been found in his blood, according to patient's statement. He continued to have attacks at infrequent intervals up to the present time. During the past ten days has brought up some bloody mucus. Examination of sputum, negative. States he has a slight cough, and in the mornings, brings up slight amount of sputum; complains of no pains in chest, slight shortness of breath on exertion. Temperatures variable, sometimes 99, occasionally 100 in the afternoons. In August and September he had night sweats; pulse, 100; weight, 170; average weight, 185; minimum weight since illness, 165. Percussion shows dullness over apex down to third rib, left lung.

Right lung, no rales; left, poor vesicular breathing, few rales heard over apex upper lobe. Blood pressure 115/100.

X-ray Examination, April 3, 1928. (Hendricks and Laws): Stereo chest: Bony structures are normal. Diaphragm is normal on the right side, but the left side is at least two interspaces higher. Heart shadow is irregular in outline and the arch of the aorta is the only portion that is clean out.

Right lung: Shows some haziness of the parenchyma and somewhat mossy appearance of the linear markings. Hilus shadow and a great portion of the bronchial tree, is practically obliterated by the mediastinal density and from the first rib, downward, there are numerous nodulated millet seed areas in close proximity to the hilus.

Left lung: Shows density which obscures the heart outline and the hilus. From the arch of the aorta, downward, there is a spangley area of density running out at right angles, involving the inner and middle zones and extending upward near the apex where the nodulated areas can be seen. These areas are irregular in outline and have a fuzzy appearance. There is some haziness in the entire lung.

Conclusions: The above findings are not typical of tuberculosis, but are very suggestive of malignancy; however, from the hilus the infiltration follows the course of the bronchial tree, the left more than the right. The infection may be syphilitic or some infection other than tuberculosis.

Our tentative diagnosis is malignancy. We hope to get a little more data on this later, because he stated that a doctor in Dallas had seen him and had told him he thought there was a growth. He told him to report to him again, but he did not do so but went to another doctor. This doctor examined him and told him that he had tuberculosis and that he had better come to the Southwest. He also further stated that he went through the Mayo Clinic in September and they told him that there was a little thickening of the bronchial tree, and that he had some bronchitis, that his blood had no malaria, and they advised his taking potassium iodide. Wassermann was negative. As stated, our tentative diagnosis is malignancy.

DR. W. L. BROWN: It is not unusual to have temperature in malignancy of the lungs. It would be my offhand guess that it is malignancy.

Later data secured by Dr. Laws:

Mayo report—Case Record, September, 1927. "Saw K. S. in consultation last September; at that time he was complaining chiefly of wheezing in the left chest associated with a non-productive cough. At this time, and also in 1923, when he was examined here, we found a palpable spleen which we felt was in all probability associated with a chronic malaria. At the time of his last visit we found his urinalysis to show a slight trace of albumin. Blood count was essentially normal. Two examinations of the blood for malarial parasites were negative. Examinations of the nose and throat showed tonsils of moderate size, fibrous and infected. At the time I examined him we made out no signs of activity in the chest. A radiogram of the chest showed evidence of an old tuberculous process in the upper left lobe with a large cavity. A fluoroscopic examination of the mediastinum made the next day was negative except for the findings of a slight widening of the aorta and evidence of infiltration in the left apex. I am asking that prints be made at once from our radiograms of the chest and sent to you. I should like also to see the films that you made recently so that we can compare them with our own."

This patient was examined by a reputable physician of ability in Dallas, the latter part of 1927,

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Journal of Amer. Med. Ass'n.

"Dr. Sutton is one of the most indefatigable of American dermatologists; a treatise on dermatology naturally comes as a sequence of his labors. He has been an independent investigator, but his work has been constructive and not iconoclastic. As would be expected, therefore, his treatise, while showing his independence of view, is along conservative lines, and is free from the unpardonable sin in a textbook of being controversial. This work is well done and it is highly recommended for study to the practitioner who would obtain a grasp of the subject of dermatology as a whole, as distinguished from a smattering knowledge of a few dermatoses."

British Journal of Dermatology:

"Dr. Sutton's book is so well known and appreciated that nothing is wanting to recommend this new edition to those familiar with the earlier works. The illustrations are so numerous as to entitle the work to be classified as an atlas of skin diseases; in fact, there are few atlases which contain so complete a pictorial record of the whole field of dermatology. The author and publishers are to be congratulated not only on having secured such a large collection but on the excellence of their reproduction."

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who told patient that "about 90 per cent of the evidence was in favor of malignancy." The patient failed to return to the above doctor for a complete diagnosis.

All laboratory reports of sputum examinations have been negative for tubercle bacilli. All reports show evidence of streptococic and staphylococic infection. However, the following is a report from a cultured specimen of sputum by the Turner Laboratory:

Laboratory report, April 3, 1928:

Tubercle bacilli, not demonstrable; mixed infection, light; few diplococci; few staphylococci; few *M. catarrhalis*; branching fungus, positive; bronchial casts, positive.

Remarks: Is it not possible that we may have fungus infection associated with malignancy the same as it is sometimes associated with pulmonary tuberculosis?

DR. W. L. BROWN showed an unusual case of advanced tuberculosis of the mesentery glands and primary carcinoma of the appendix. This case is to be the subject of a full report at an early date.

Case Report by DR. E. W. RHEINHEIMER: Male, age 40, family history negative. Past history: usual childhood diseases; has always enjoyed good health; had typhoid some twenty years ago, recovered without any trouble. Present complaint began about two years ago with ringing in the ears, which gave no particular trouble, but gradually patient became dizzy with buzzing head, sometimes with frontal headaches and sometimes in the occipital area. He first consulted a physician 18 months ago, who told him he had high blood pressure and put him on a diet for several months, without relief. He next consulted an oculist, who fitted him with glasses which were worn for a year without relief. He was advised to have an

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operation for infected frontal sinuses, but operation was refused. About four months ago he was told by a doctor in St. Louis that he might have meningitis. He has now been entirely deaf in the right ear for the past two months, with some deafness in the left ear. His weight has not changed much, but he has lost about ten pounds since the beginning of his trouble.

Examination, entirely negative except both external and auditory canals plugged with dry wax. On three washings, the wax was washed out entirely and his symptoms were relieved. This was about two months ago and he has had no trouble since.

Case Report, by DR. E. W. RHEIMHEIMER: Child, five years of age. Seen one evening about 7 o'clock. The youngster had always been healthy, with no particular trouble, but at this time had had no bowel movement for two days; temperature $104\frac{1}{2}$; abdomen, distended, in fact, so greatly distended it was impossible to feel anything. The mother said she had given him a dose of castor oil about two and one-half hours previously. I tried to examine him below, and in the left quadrant I thought I felt a hard mass, but distention was so great and the child so tender, I could not make a careful examination. About that time the child expressed a desire to have a bowel movement, which he did and passed a mass about the size of a small egg. How he passed it, I do not know, but he did. We examined it and it was found to be a mass of bran, more or less moist on the outside but the center dry and hard as a rock. The bran flakes were very evident. The mother had been feeding the youngster bran because of constipation. He passed a lot of gas and was perfectly all right within a half hour. Several days later she called me again and said the child was distended again. She said he had

already received a dose of castor oil. In a short time he passed another mass, a little bit smaller than the one a few days before. The mother has now been convinced that bran is not the proper food for the youngster.

Case Report, by DR. E. J. CUMMINS: Female, 27 years of age, came to me the first of last month, for diagnosis; had no complaint but wanted to know what was the matter with her. Stated she had been told by two physicians she was pregnant. States her abdomen has always been large, but the size increased in the last few months, more apparently the last two months. On January 1st she was examined by a physician and told she was four and one-half months pregnant. Her menstrual periods have been perfectly normal, she has not felt any fetal movements and has noticed no change in her breasts; married three years, never pregnant, last period was perfectly normal, lasting usual time. This was less than twenty-eight days ago. She had the usual diseases of childhood and, since, had always been well. She can remember when she was in the sixth grade at school she had occasional pains in her left side and on one occasion the pain was quite severe. She began menstruating at thirteen and never missed a period, although some of them were painful.

Examination: Fairly well-nourished woman who appears perfectly normal except for enlargement of abdomen. Negative all over except the abdomen, which is enlarged, symmetrical and on inspection one would judge is six and one-half or seven months pregnant. On palpation is felt a mass, which is rather soft and gives sensation of fluctuation, is freely movable and gives one the impression of being without the body of the uterus.

Vaginal examination: Cervix points downward but is rather soft and there is no unusual discolor-



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ation of the vagina. On palpitation, the mass felt previously can also be readily felt in the vagina. One has the impression of being able to feel the body of the uterus between the vaginal wall and the mass; ovaries cannot be made out. Examination does not cause the patient any pain.

We were rather of the opinion that this woman was not pregnant, that she had a tumor in the abdomen, but to be sure about it we had an x-ray picture taken which did not reveal the presence of any fetus. It did show the outlines of the kidneys plain enough for us to be sure that this mass did not originate from them; we have, therefore, a woman with a large abdominal tumor, which is symmetrical, rather soft, with sensations of fluctuation and no fetus visible under the x-ray. We probably have an ovarian cyst and we thought we would like to prove it, if we could, before opening the abdomen. So it occurred to us that probably, if this was an ovarian cyst, the tube would be stretched out over the body of the cyst, so we injected her uterus with liptodol.

X-ray picture following the injection of liptodol showed the body of the uterus turned to the right at nearly a right angle. The right tube was normal and in its usual place. The left tube elongated, straight, and its fimbriated end raised out of the pelvis at a level of the third lumbar vertebra.

Three days later patient was operated and an ovarian cyst was removed. Patient made an uneventful recovery.

DR. A. D. LONG showed lantern slides and x-ray films of cases of pulmonary tuberculosis and others in which the diagnosis had not been established, bringing out many interesting points. He cited, in particular, one case which had come to his sanatorium, apparently with tuberculosis in the far-advanced stage. This man had spent much time in general and tuberculosis hospitals and insisted that he had tuberculosis. No signs of tuberculosis could be found, however, examination of sputum, x-ray and fluroscope all being negative.

EL PASO HEALTH DEPARTMENT NEWS

Births for March, 1928

	Male	Female	Total
White	27	27	54
Mexican	91	71	162
Negro	0	0	0
Total	118	98	216

Deaths for March, 1928

	Male	Female	Total
White	43	25	68
Mexican	82	72	154
Negro	6	1	7
Total	131	98	229

EL PASO COUNTY NEWS

DRS. W. L. BROWN, SAFFORD and MILLER attended the Arizona State Medical Association meeting in Tucson, April 19 and 20. Dr. Miller, president-elect of the Texas State Medical Association read a paper in the symposium on tuberculosis on "Surgical Procedures in Tuberculosis." Dr. W. L. Brown read a paper on the "Life, Growth and Reproduction of Bone in its Relation to the Healing of Fractures."

THE PANHANDLE DISTRICT MEDICAL ASSOCIATION meeting was held early in April and was attended by Dr. F. P. Miller of El Paso, president-elect of the State Association.

DRS. CUMMINS, LAWS, TURNER, LYNCH and MILLER were guests at the PECOS DISTRICT meeting, early in April. Dr. Turner read a paper

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on the "Use of Lipiodol." Dr. Cummins presented a treatise on "Fracture of the Elbow." Dr. Lynch exhibited slides and case reports on Kidney Tumors."

DR. J. G. WILSON, Surgeon, U.S.P.H.S., has been invited to read a paper before the Texas State Medical Association at Galveston, on the "Diagnosis of Feeble Mindedness." He will also address the general session on "Public Aspects of Feeble-mindedness."

DR. F. P. MILLER will address the graduating class of the Texas State Medical School, at Galveston.

AMERICAN ASSOCIATION FOR THE STUDY OF GOITRE

The annual meeting of the American Association for the Study of Goitre will meet in Denver, Colo., June 18, 19 and 20 with scientific sessions in Medical Hall, 1620 Court Place. The headquarters will be the Cosmopolitan Hotel. Dr. Gordon S. Fahrui, of Winnipeg, Canada, is the president and Dr. K. W. Kinard, of Kansas City, is the secretary. The Medical Society of the City and County of Denver invite doctors of the southwest who are interested in this important branch of medicine, to attend and participate in this meeting.

MEDICAL - ELECTRICAL-PHARMACEUTICAL EXPOSITION IN MEXICO CITY

Mr. Ignacio Ocampo y A., publisher of the Journal of the Mexican Medical Association, and the Bulletin of the Mexican Society of Radiology, and Mr. Frederick E. Storm, collaborator of the Mexican Medical Directory and representative in Mexico of the American Medical Association, the International Trade Papers, Inc., etc., are organizing a Medical-Electrical-Pharmaceutical Exposition and Convention, which will take place October next, in Mexico City. The Exposition will be held under the auspices of the President of the

Republic, General Plutarco Elias Calles, the Secretary of Education, the Mexican Medical Association, the Society of Electro-Radiology, the National University, the Health Department, etc., and great efforts are being made by the organizers to make this an attractive and popular event, not only to the medical and pharmaceutical professions, but also to the public in general. A great number of the leading firms and representatives handling medical instruments, supplies, pharmaceutical products, etc., have already offered their support and expressed their desire to take active part in the Exposition. There will also be a prize competition for doctors, dentists, pharmacists and students, and many useful and valuable prizes have already been received from the President of the Republic, Government Offices and Institutions, commercial houses and individuals. The prizes are now on exhibit at various points, and will continue to be shown until the opening of the Exposition. At an early date, full details of the program and principal events and features of the Exposition will be duly published, and anybody wishing further information or details should communicate with the Managing Director of the Exposition, Apartado 982, Mexico, D. F.

Announcement has been made that the Maltbie Chemical Company of Newark, New Jersey, has contributed a grant for a research fellowship for the coming year to the Department of Chemistry of Princeton University.

The research work to be done under this fellowship will be fundamental in character and will cover certain phases of the chemistry of creosote and creosote compounds.

The establishment of this research fellowship is in line with the policy of the Maltbie Chemical Company to extend its research activities and to contribute to a study of the chemistry of important drugs.



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PERSONALS AND NEWS

DR. HOWELL S. RANDOLPH, brother of DR. VICTOR HANDOLPH of Phoenix, has entered into association with Drs. Holmes and Randolph, of Phoenix, in the practice of diseases of the chest and heart. Dr. Randolph graduated from Johns Hopkins in 1926, serving internship in the Presbyterian Hospital in Chicago, and thereafter taking postgraduate work at the McCormick Institute for Infectious Diseases.

DR. L. E. WIGHTMAN, of Globe, was called to Wilkesbarre, Penna., the latter report of March on account of the illness of his sister.

DR. H. B. LEMBERG, of Casa Grande, is constructing a hospital in this town. This is to be a cement and brick structure, designed to accommodate fifteen patients, with fully equipped operating room and obstetrical department. The hospital will be located opposite the high school block and will represent an expenditure of about fifteen thousand dollars.

DR. A. F. MAISCH, of Los Angeles, formerly located in Globe, Ariz., was a visitor in that city the latter part of March. Dr. Maisch has a son in Phoenix, under medical treatment for tuberculosis.

PHOENIX ADOPTS STANDARD MILK ORDINANCE:—The standard milk ordinance of the Public Health Service was adopted by the city of Phoenix at the meeting of the City Commission on April 26. The Maricopa County Medical Society had previously passed a resolution endorsing this ordinance. It makes provision for stricter supervision of milk production and handling. Grade A raw milk can still be sold, but with a lower allowable bacterial count. One provision of the ordinance is that all persons handling milk are required to undergo a physical examination by the city health officer once a year.

THE COCHISE COUNTY MEDICAL SOCIETY, at their meeting in Douglas, on April 4th last, were addressed by Dr. Willis W. Waite and Dr. G. Werley, both of El Paso. This presentation consisted of a clinical and pathological demonstration of heart lesions, this being a part of the material collected by the Clinical and Pathological Club of El Paso.

DR. FELIX P. MILLER, of El Paso, president of the Texas State Medical Association, addressed the convention of the Associated Master Plumbers of Texas, in El Paso, on April 17, calling attention to the close relation between the work of the sanitarian and the home builders. The plumbers have adopted a slogan "Make a Health Examination of Your Home," which is quite parallel to the slogan of the American Medical Association, the "Periodic Health Examination."

DR. AND MRS. FRED C. HOLMES, of Phoenix, sailed from New York on April 25th for Europe, where they will spend four months. Dr. Holmes expects to visit all the chief centers of Europe where tuberculosis is treated, including Rollier's hospital, Sauerbrück's clinic on thoracoplasty, Jacobaeus' clinic on thorascopy. He will return about September first.

DR. JOSEPH M. GREER, of Phoenix and Mesa, left the latter part of April for a postgraduate course of eight months in New York. Four months of this time will be spent in the New York Postgraduate School in general surgery and the other four months with Dr. Albee in orthopedic surgery. Upon his return, he will locate in Phoenix, where his work will be confined to general and orthopedic surgery.

DR. CHARLES S. VIVIAN, of Phoenix, returned on May 7th from attendance at the California State Medical Association in Sacramento, where he presented a joint paper with Dr. Robt. V. Day, of Los

Angeles, on "Experience with the Colling's Electrotome."

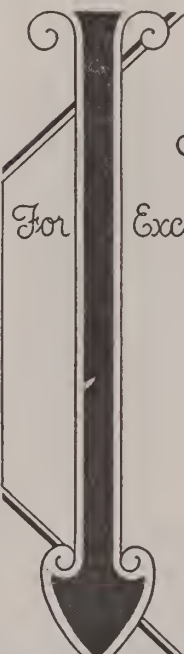
DR. L. H. THAYER, of Phoenix, has been confined to his home for several weeks, as the result of a back injury sustained when he was attempting to extinguish a fire in his automobile. He did not at first notice the back injury, but after a few days he became so crippled that it was necessary to splint the lower spine.

DR. GEORGE A. BRIDGE, of Bisbee, left on April 22 for a visit to eastern points. He went first to Springfield Mass., to attend the golden wedding anniversary of his sister. He will then spend a short time in New York City before returning to his work as chief surgeon of the Copper Queen Hospital staff.

SMALLPOX IN ARIZONA:—Dr. L. E. Wightman, city physician of Globe, Ariz., during the last week of April started a vaccination campaign to combat a small epidemic of smallpox, there being nine cases at that time in the city. School children were to be vaccinated free of charge.

In Cochise County, Dr. R. B. Durfee, county superintendent of health, announced the cessation of the epidemic. Some four or five thousand people were vaccinated in this county, resulting in complete checking of the epidemic in a few weeks time. In the last week of April the last case had been discharged, and no new cases had appeared.

MILK CONFERENCE IN PRESCOTT:—On April 25, a conference of the dairymen and business men of Prescott was held, at which time Dr. H. T. Southworth, city health officer, Dr. John W. Flinn, county health officer, with other city health officers, gave talks on the new standard United States Public Health Service milk ordinance. This resulted in a better understanding and a determination to cooperate in the production of better milk.



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DR. HUGH CROUSE ILL

The medical profession of the Southwest in general, will be very sorry to hear of the continued serious illness of Dr. Hugh Crouse, of El Paso, president of the Medical & Surgical Association of the Southwest. Following closely upon the Clinical Congress in El Paso, last November, and probably as a result of the hard work over a period of months in assembling this meeting, Dr. Crouse suffered an acute heart failure which confined him to bed for many weeks. He was gradually recovering from this, when he suffered an intracranial hemorrhage, and is critically ill, with little hope of recovery.

STATE NURSES' CONVENTION IN TUCSON

Completing a series of meetings of related interests, held in Tucson during April, the Arizona State Nurses' Association held their annual convention on April 25 and 26, under the presidency of Mrs. Vera Thomas, with Miss Bertha G. Easton as secretary.

This was the tenth annual gathering of the Nurses' Association. Mrs. Kathryn Hutchinson of Tombstone was chosen president for the ensuing year, and Mrs. Bertha Easton of Phoenix was re-elected secretary.

PUBLIC HEALTH TALKS IN TUCSON

During the recent meeting of the Arizona State Medical Association in Tucson, the Parent-Teachers Association was addressed by Dr. Henry Dietrich of Los Angeles and Dr. G. S. Lockett, director of the Bureau of Health of New Mexico. The subject of their talk was infantile paralysis, Dr. Dietrich telling about the clinical phases of the condition, while Dr. Lockett discussed the methods of prevention. Both of these doctors were invited guests of the Medical Association, one being the fraternal delegate from California and the other the fraternal delegate from New Mexico.

PROPOSED MEDICAL BUILDINGS IN PHOENIX

Two new office buildings for the accommodation of the medical and dental professions are being planned for Phoenix.

One of these buildings is a very extensive project, to be built by George L. Johnson, of Chicago, on his property facing Van Buren St., between Central Ave. and First Ave. The proposed fifteen story central structure will include a portion designed especially for the use of the medical and dental professions. This portion of the plan is in charge of Dr. F. E. Morgan, of Los Angeles, who is best known for his handling of the Medico-Dental Building in Los Angeles, on West Eighth and Figueroa streets, and a similar building in San Francisco.

The other proposed building is to be a cooperative building, owned by the tenants. The necessary preliminary subscriptions totaling one hundred thousand dollars have been secured from medical and allied professions of Phoenix, the corporation has been formed (Medical Arts Building Company), and plans are being worked out by the Board of Directors, composed of Dr. H. B. Gudgel, Dr. J. M. Greer, Dr. J. L. Borah, Dr. Win Wylie, Dr. A. J. McIntyre, Roy Wayland and W. J. Horspool.

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Volume XII.

JUNE, 1928

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ARIZONA STATE MEDICAL ASSOCIATION
EL PASO COUNTY (TEXAS) MEDICAL SOCIETY
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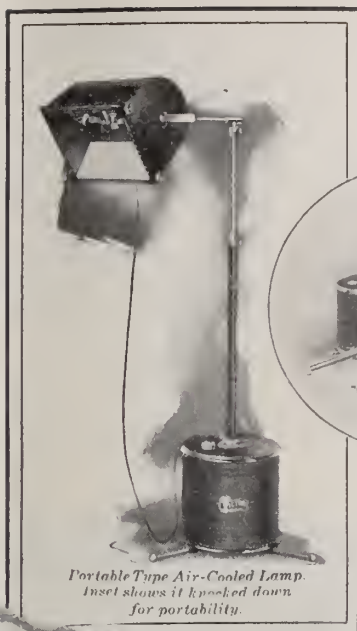
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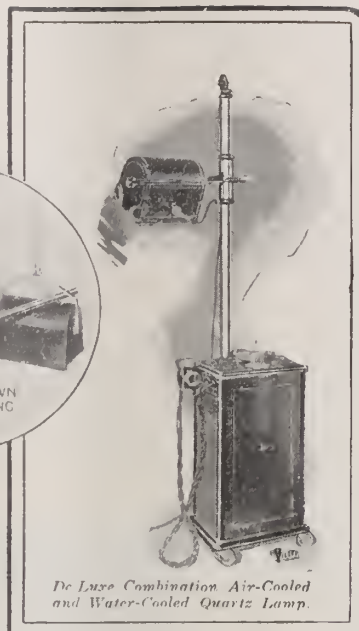
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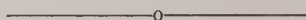
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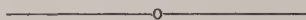
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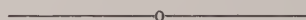
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THE EXTENSION OF THE SURGERY OF NEOPLASTIC DISEASES BY ELECTROTHERMIC METHODS

GEORGE A. WYETH, M. D.,
New York City.

(Lecture before the Clinical Congress of the Medical and Surgical Association of the Southwest, held at El Paso, Texas, Nov. 2 to 5, 1927.)

Emphasis is too often laid upon the fact that we do not yet know the cause of cancer. We should more strongly emphasize the extent of our definite knowledge concerning the nature and progress of the disease, and the fact that improved methods—and modifications of old methods—are arming us ever more effectively in our struggle against malignancy.

We now know many different forms of neoplasms and are able to grade them, according to Broders. Groups 1, 2, 3 and 4, based upon degree of cell differentiation or degree of malignancy. Grades 1 and 2, being less malignant, are more responsive to treatment and can be reached by a wider range of curative measures, while grades 3 and 4 offer less hope of cure if attacked solely by conventional means. The value of this to the patient is very great, for the modern surgeon with laboratory resources is able to secure so prompt and definite a report as to degree of malignancy that he can plan his mode of procedure on the added information.

In the treatment of localized malignancy which can be immediately removed, we no longer use x-ray or radium. They are time-consuming, uncertain in action and in this type of case should not be employed.

Surveying the field as a whole, surgery still remains the cancer sufferer's chief hope.

However, so many cases are already beyond the reach of the scalpel when first seen by the surgeon that there is urgent need for new method. Merely to urge early observation, and earlier operation, is not enough; there is also demand for modification of old method.

To illustrate: In 1925, Simmons of Boston, reporting from the Collis P. Hunting-

ton Memorial Hospital, found that, of 103 cases of carcinoma of the tongue who applied for treatment, 76 were inoperable.

Similarly, Judd and New, of the Mayo Clinic, reported that, of a total of 303 cases of carcinoma of the tongue who applied for treatment, 185 were inoperable. That is to say, 61 per cent could not be reached by our most skilful surgeons. Judd has since said: "For growths too extensive for radical removal, diathermy offers the best prospect." Just so! But we go further and suggest that a remedy which offers the best product in cases too extensive for scalpel removal offers also the best prospect in early and more localized conditions.

In endothermy we have an extension of surgery's usefulness that will not only reach a much larger percentage of cases but will, we believe, reach them with more lasting benefit.

In a brilliantly informing article entitled "The Relative Values of Surgery and Radiotherapy," W. J. Mayo points out that only

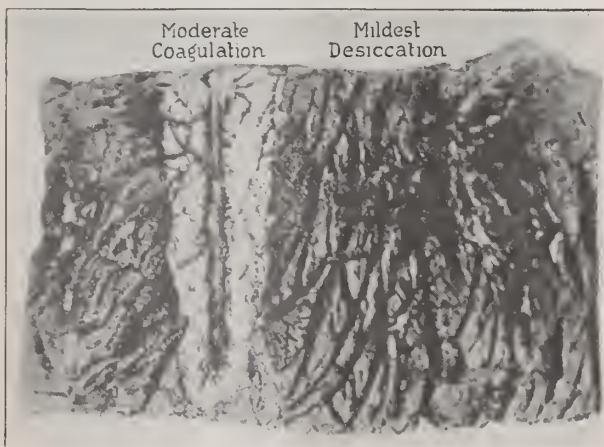


Fig. 1. Reproduction of a piece of meat treated by endothermy, to illustrate desiccation and coagulation. On the right, a pin-point area has been desiccated. On the left, 1000 ma. applied for half a minute have resulted in moderate coagulation. The amount of destruction is progressively penetrating and is under the control of the operator, depending upon the amount of current and the length of time applied.

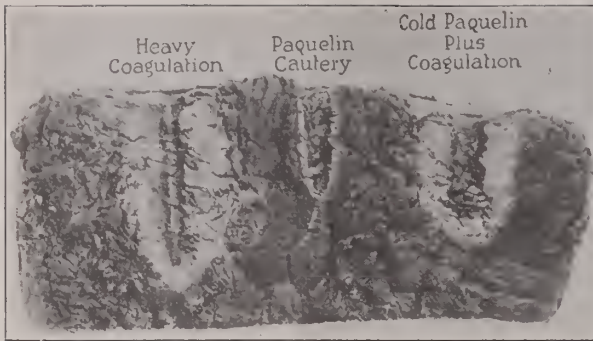


Fig. 2. Meat treated by heavier current for longer length of time. Note depth of coagulation at the left. In the center a Paquelin cautery was introduced at a red heat and kept going for half a minute. The effect is merely a surface burn with little or no penetration. At the right the Paquelin applicator was thrust cold into the meat and then given 1000 ma. for the same length of time by attaching one pole of the bipolar current. Note penetration.

particles of molecular size, such as sugar, amino-acids and other crystalloids, are absorbed directly into the vascular capillaries of the body, while colloids and large particles are picked up by the lymphatics. Dr. Mayo says, "Bacteria and malignant cells do not pass directly into the capillaries but are carried by phagocytes into the lymphatics which are a closed system of vessels."

To emphasize this fact is to emphasize the danger of dissemination which lies in the scalpel's severance of lymphatics and the advantage which inheres in a method which seals instead of severs.

When a case of malignancy applies to us for treatment, we have three possible methods of attack; x-ray, radium, and endothermy.

We no longer use the scalpel in the treatment of malignancy of whatever grade, wherever located, for, as Dr. Howard A. Kelly has recently said: "The endothermic conception is as positively and aggressively surgical as the time-honored scalpel, ligature and suture, and tends largely to replace the first two * * * Its field par excellence is that of the malignant growth which, by and large, it covers more effectively than any old surgical method." That is to say, endothermy accomplishes everything the scalpel can do and in cases of malignancy does it better.

If the case is one to be treated by endothermy we again have three different procedures: to desiccate the malignancy; to coagulate the malignancy; or to excise it with

the endotherm knife, which seals lymphatics as it cuts. These procedures are not interchangeable; each has its own indication and should be learned and used accordingly. Desiccation and coagulation destroy the malignancy in situ before removal and greatly reduce the danger of metastasis and the likelihood of recurrence. By combining coagulation and excision, we obviate those two concomitants of scalpel surgery—hemorrhage and shock.

The destruction is immediate and its extent is definitely under the control of the trained operator who regulates the kind of current used, the amount of current and the length of time it is applied. When this knowledge and skill shall have been generally acquired, great will be the reduction in the number of so-called inoperable cases which are now slipping into hopeless suffering and death.

CASE 1, (Fig. 3, A to F)

A. G., female, 58, first seen March 4, 1924, at which time the patient stated growth had begun some three years prior as a sore inside the cheek opposite the right bicuspid. Teeth began to hurt but, even after extraction of an apparently offending crooked tooth, sore did not heal. Remained small for one year, when it began to grow rapidly and at the time of admission to hospital the mass was size of an extremely large orange. No pain or tenderness but occasionally tissue would bleed and parts of it fall away. The right cheek and upper lip, mainly to right of midline, were involved. Skin was tense and shiny and there were three spots of ulceration. Externally the growth extended from 4 cm. anterior to angle of mandible on the right side to the point opposite the first incisor on the left side. Interiorly it extended from the last molar to the midline and there was seen a deep crater-form ulceration which extended to the upper lip. The mass was lobulated and tense; freely movable, it raised the right ala of the nostril and seemed only to involve tissues of upper lip and cheek. There were a few palpable glands on both sides of the neck, especially on the right.



Fig. 3, A and B:—Front view and side view of large malignant epithelial tumor of cheek and lip (Case 1).

Under ether narcosis, growth was removed March 13, 1924, without hemorrhage and shock, by the combined technic of bipolar endothermy and the endotherm knife. No secondary hemorrhage, and wound was healed in four weeks. One month later plastic operation was performed and at this writing, more than four years later, there has been no evidence of recurrence.



Fig. 3, C and D:—Frontal and side view of patient in Case 1, after removal of growth.



Fig. 3, E and F:—Frontal and side view of patient in Case 1, after healing of wound.

CASE 2 (Figs. 4, A and B)

Mrs. H. S., age 59, first seen March 6, 1925. History showed eight years' slow growth of the lesion, with a very much accelerated rate of growth within the preceding month and an increase of sensitiveness. Clinical diagnosis was melanoma, but no slide was made because the black proliferations on an old pigmented nevus indicated a situation serious enough to make us wish to destroy the whole immediately without exposing the patient to the danger of mechanical dissemination by taking any tissue for microscopic examination. Operated March 10, 1925, complete anesthesia being employed in order to avoid the traumatism of a novocaine needle near the growth. By the standard technic of monopolar endothermy the lesion was removed in a single treatment, and the result was in the highest degree satisfactory. No recurrence to date.



Fig. 4-A, Case 2; old pigmented nevus which had become active. Note areas of deep black proliferation.

Fig. 4-B, Case 2; complete removal by monopolar endothermy, and perfect healing with no constriction.

CASE 3. (Fig. 5, A and B)

M. M., female, aged 25, appeared at Clinic and reported that the lesion was growing and its immediate removal was advised. The cutting current of the endotherm was employed and within a very few minutes, under local anesthesia, the entire growth was excised, without hemorrhage, by the endotherm knife. The wound was sutured and healed by first intention. Fig. 5-B shows the smooth scar which resulted from the so brief operation and there has been no recurrence or evidence of dissemination to this date, a period of over four years.

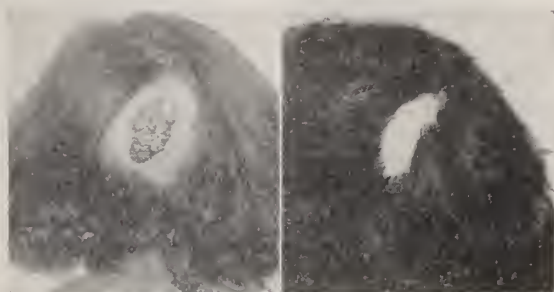


Fig. 5-A, Case 3; cerebelliform melanoma of scalp, Grade III.

Fig. 5-B, Case 3; soft, pliable healing.

CASE 4. (Fig. 6, A to F)

Female, aged 5; fibro-angio-sarcoma. At birth, child showed nothing abnormal except a black mark on posterior half of scalp, the size of a twenty-five cent piece. At the time the writer was called to see the case at the City Hospital, the growth appeared as illustrated in Fig. 6-A and B, with metastatic glands. In June, 1925, the growth was excised by the endotherm knife with but little hemorrhage and no surgical shock. Healing steady and uninterrupted. By undermining, the skin glands of the neck were coagulated by bipolar endothermy and left in situ to be absorbed. Microscopic examination established the fibro-angio-sarcoma diagnosis. Up to the present time, almost three years following operation, there is no sign of recurrence and glands have entirely disappeared.



Fig. 6, A and B:—Case 4, posterior and side view of fibro-angio-sarcoma of scalp.

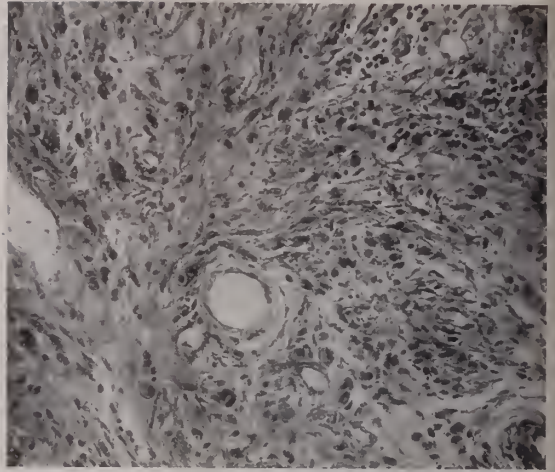


Fig. 6-F:—Photomicrograph of section from tumor removed from patient in Case 4.



Fig. 6, C and D:—Case 4, posterior and side view after removal of tumor and healing of wound.



Fig. 6-E:—Tumor removed from patient in Case 4.

CASE 5 (Fig. 7, A, B and C).

J. D., male, aged 55, stagehand. On left dorsal surface of tongue was a wart-like growth projecting one-eighth inch above the surface. It was white, corrugated and $2\frac{1}{2}$ cm. by 1 cm. in area. There were palpable submaxillary nodes and sublingual glands. The clinical diagnosis was papilloma but specimen showed squamous cell epithelioma. Under local anesthesia the growth was dehydrated and removed as dead tissue. (Had the lesion been of the infiltrating variety, a larger part of the tongue would necessarily have been removed.) There was no removal of the glands of the neck. No post-operative treatment followed for although patient was referred for roentgen-ray radiation, he did not attend to it. The photograph (Fig. 7-B) was taken two years after the operation. General condition excellent and no evidence of recurrence or extension of disease.



Fig. 7-A. Case 5, proliferating squamous cell epithelioma of tongue.



Fig. 7-B. Case 5; photograph taken two years after operation, illustrating the absence of contractile scar formation.

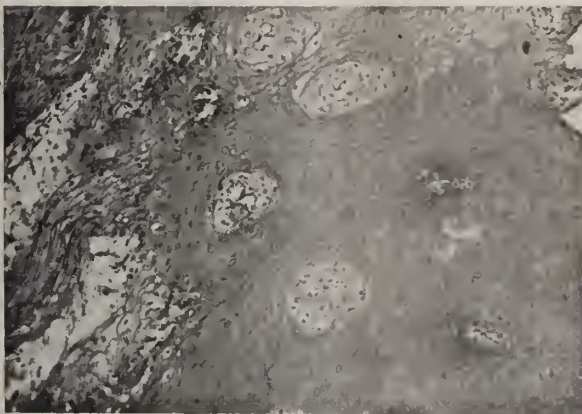


Fig. 7-C. Photomicrograph of proliferating squamous cell epithelioma of tongue, Grade I, (Case 5).

CASE 6 (Fig. 8, A to E)

D. G., male, aged 66. Patient had enjoyed good health up to three months before coming to Clinic, when a small sore appeared on the left side of his nose, increasing rapidly in size and soreness. In spite of the application of salves and lotions and five roentgen-ray treatments, the lesion grew rapidly and became ulcerated, finally involving whole side of nose almost to the inner canthus of the eye and well over on the right side of nose. The center of the growth was an ulcerating area about the size of a ten-cent piece. There was no palpable glandular involvement. In March, 1922, under ether narcosis, bipolar endothermy was employed to destroy the lesion, the entire mass first being circumscribed by a wall of coagulation necrosis drawn in healthy tissue. A section was taken for microscopical examination after which coagulating current was used to destroy lesion in situ, excising same as dead mass. Patient left hospital on the fifth day, thereafter reporting to the Clinic for dressings, and at the end of six months healing

was complete. In six years there has been no recurrence. Patient has been wearing an artificial nose for almost five years, same being held in place by an adhesive, resinous substance non-irritating to the skin. It is removed at night and replaced every morning and is so skilfully colored as to be not easily noticeable.



Fig. 8-A: Case 6, rapidly growing infiltrating prickle cell carcinoma of nose, Grade II.



Fig. 8-B: Case 6; side view of lesion showing central ulceration size of ten-cent piece.



Fig. 8-C: Case 6; photograph taken six months after operation showing filling in.



Fig. 8-D: Case 6; artificial nose which patient has worn steadily for almost five years.

A TURN IN THE ROAD

F. J. DUNN, M. D.
El Paso, Texas.

(A talk before the El Paso Clinical and Pathological Society, on March 29, 1928, following the decision to arrange and classify their autopsy material for museum purposes.)

After approximately five hundred post-mortems performed in the past few years, sufficient material is on hand, consisting of about eight hundred specimens collected and preserved, to justify the establishment of a scientific collection of pathologically interesting specimen material, either confirming or disproving ante mortem diagnoses and, in some instances, disentangling medical dilemmas.

This might be a proper place for a discussion of the value, importance and satisfying features of autopsies. However, the evidence is before us in the conglomerate mass of postmortem material, especially significant when we realize what a short time has elapsed since "Postmortem Record No. 1" had its birth. In considering the number of postmortem examinations requested during this time in this comparatively small community, one must come to the conclusion that we do appreciate what revelations the postmortem study of the corpse will furnish to the observer. It is an evident fact that the seeds of endeavor have found fertile soil here and the medical men of this community are taking advantage of that best *modus operandi* to

gain medical knowledge, to learn and advance by that least fallible method which medical teaching has to offer.

There is nothing easier, once the value of autopsies has been fully realized, than to pickle and "jar up" hundreds of organs, seemingly with no more purpose than to give St. Peter a merry time on the day of days, looking for Mary's kidneys and Johnny's liver, so that, reconstructed in their shells of earthly wanderings, they can appear identifiable before the throne of last judgment. Such collections of specimens lead to but one end: after a few years, somebody becomes thoroughly disgusted; formalin, Kaiserling and alcohol find their way into the sewer, and the nearest furnace performs the duties of a crematorium. Once upon a time the specimens meant something to the one who performed the autopsies, and perhaps to the party who requested them. To those who followed, they are meaningless and nothing can be learned from them. Properly collected and arranged museum material would save the later comers from the same mistakes and fallacies, and prevent them from having to make a new start. In so many instances, one finds just such collections, where rare cases have been unearthed during long years of practice, but they have been stored up and put away with less noteworthy specimens, until the end is a dusty, dirty and sticky mass of glassware, without any possibility of identifying the

"who's who" or "what's what." While a collection of pathological material or, in fact, any kind of collection, unarranged and unsystematized, is not worth the price of the solutions they are supposed to be covered with, postmortem evidences, classified, properly cared for, segregated and diagnosed as to source, history, meaning and importance, constitute the best school there is in medical science.

The question to bear in mind is, What leads us to the museum room? This should guide us in determining how the specimens should be collected so that the visitor's wishes and wants can be readily satisfied. One who visits such a room might wish to study the pathological specimens pertaining to and illustrating a certain disease, for example, luetic aortitis. He should find there an index in which he can quickly find catalogued all the information about specimens preserved and diagnosed as such; this should show the specimen numbers and the group shelves where they can be found. In this way he could quickly lay his hands on all available specimens of that certain kind which he wishes to study. Such an index is the Subject Index.

While studying his subject, the question may arise as to what else noteworthy was found in certain cases, in which event the postmortem records are desirable for inspection. The specimen should show the number of the postmortem record and those records should be filed in numerical sequence.

Some one else might wish to read a paper on a certain subject, and, while he finds the available material in the subject index, he especially desires to demonstrate specimens contributed by his own practice or specimens of certain cases he particularly knows about. This requires an Object Index, classifying the specimens with the names of the deceased. In no instance should a specimen be visibly marked with the name of the person it originated from.

Lastly, it seems necessary to keep a record showing the various organs of each case preserved. This information should be found in connection with the postmortem record, following the final diagnosis. In the same place the presence of histopathological slides should be preserved, with the postmortem number.

Following the trend of these thoughts, the collection here in this room will be indexed as follows:

1. Subject Index, according to groups.
2. Object Index.
3. Postmortem Records.

For statistical purposes, mainly for the caretaker of the collection, a fourth index,—a Group Index,—seems to be justified. Its purpose is to give a better check on what is here, what is going, coming,—or gone never to return.

For convenience of shelving, the specimens are divided into more or less logical groups, as follows:

A. Heart and greater vessels, embracing myocardium, endocardium, pericardium, arteries, veins and lymph channels.

B. Blood-forming organs, spleen, lymph glands, thymus.

C. Bones and joints, including cartilages.

D. Skin and its appendages, as sebaceous glands, hairs, nails.

E. Central nervous system.

F. Intestinal tract and peritoneum, mouth, teeth, gums, pharynx, tonsils, salivary glands, esophagus, stomach, duodenum, peritoneum, omentum, intestines, rectum.

G. Liver, gallbladder, pancreas.

H. Respiratory organs, nose, larynx, trachea, lungs, bronchi, pleura and thyroid.

I. Urinary organs, kidneys, suprarenals, ureters, bladder, urethra.

J. Male sexual organs.

K. Female sexual organs.

L. Miscellaneous or unclassified.

The nucleus of a pathological museum is, in this way, created by you. There is valuable material housed in this room and, being at a relatively far distance from great medical centers, this place should be more than appreciated. It should serve for private study; it should furnish material for lectures you want to give, for treatises you want to publish; it should be the battle-ground of differing ideas and anastomosing viewpoints; it should be the place of consultation and fellowship; last, but not least, it should be your private club room, where a good natured razzing about fallacies committed may serve for the betterment of the cause. It is up to you.

The slogan is: The nucleus must grow. All autopsy material and surgical specimens should be submitted, regardless of the fact that identical or similar cases are already represented in the collection. Remember that one specimen of a myocarditic heart is no good to study, but from fifty such hearts one can learn what they look like. This is especially true when the specimens are accompanied by the history. These are better than textbooks.

With the growth of this museum, the members of the Pathological Club will increase in numbers, and vice versa. Who knows but what this may be the turning of the first shovel for the foundation of a great scientific institution on the shores of the Rio Grande.

CASE REPORTS

(1) ADDISON'S DISEASE

(2) REYNAUD'S DISEASE

R. B. RANEY, M. D.

Resident Physician, St. Joseph's Hospital,
Phoenix, Ariz.

(Presented before the regular monthly staff meeting of this Hospital.)

CASE 1. ADDISON'S DISEASE.

An old white man entered the hospital, complaining of fatigue of three years duration, attacks of fainting during past three weeks, gastric irritability with nausea and blood tinged vomiting.

Present History: Three years ago a peculiar feeling of fatigue developed. A marked loss of strength manifested itself with intermittent attacks of syncope, rendering patient unable to carry on his usual occupation. Soon after the onset of fatigue, a severe attack of nausea and vomiting occurred, lasting about a week. These attacks became chronic in character with periods when he was relatively free, but they always recurred. Along with this condition, but one year later, a brownish pigmentation began to develop over the entire body, more pronounced on the arms, head, neck and genitals, broken only by small areas of leucoderma. The pigmentation was progressive in character, especially on the arms, face, neck and genitals, until the present time, assuming a deep brownish color. Three days prior to entrance to hospital, fatigue became much more pronounced, nausea and vomiting were almost constant—the vomitus, at time of entrance, was slightly blood-tinged. Patient was put to bed. Gastric symptoms subsided the same day but fatigue remained profound.

Past History: No cancer, tuberculosis, insanity, diabetes, gout or paralysis in his family. He claims to have had all the diseases of childhood. Pneumonia at age of 24, which was mild, lasting only about a week. Had never had the responsibility of a family. Has indulged only moderately in alcohol. No history of gonorrhea or syphilis.

Physical Examination: General examination indicated an emaciated, senile, white man with asthenic expression. Voice slow and deliberate, pausing between phrases. Deep pigmentation of the skin to a brownish hue, most marked on the head, neck, arms and genitals, with pinhead to dime-sized areas of leucoderma. There were multiple purplish areas, resembling petechial cutaneous infiltration not edematous. Marked atrophy of skin and loss of tissue turgor. Loss of subcutaneous fat.

Head: marked tissue wasting. Eyes react to light and accommodation with pupils round and equal; arcus senilis one plus. No abnormal findings in ears or nose. Patchy pigmentation of membrane of mouth, with dental caries four plus; tonsils atrophic, small and buried. No palpable masses in neck; slight visible carotid pulsation. Cardiovascular: soft, blowing systolic and presystolic murmur at apex; apex beat at nipple line; no irregularity; marked arteriosclerosis of all peripheral vessels; blood pressure 118/66. Lungs showed no rales and no evidence of fluid or con-

solidation. Abdomen scaphoid in character, without tenderness, rigidity, masses or fluid. No abnormalities of genitals. Rectal examination showed prostate enlarged, smooth and firm. Extremities showed no deformities or abnormalities. Neurological: no anesthesia nor paresthesia; ankle and patella reflexes normal; no pathological reflexes.

Laboratory: Red count 2,500,000; white count 5,000, small lymphocytes 24, large lymphocytes 76, hemoglobin 75, index 1.5. Urine was cloudy, with albumin positive, sugar negative, insufficient quantity for sp. gr.

Diagnosis: Addison's Disease. This diagnosis was based on (1) the progressive fatigue, (2) attacks of syncope, (3) pigmentation, (4) low blood pressure, (5) gastro-intestinal irritability with remissions.

Differential Diagnosis: From pernicious anemia (1) absence of lemon yellow tint, (2) loss of subcutaneous fat which is retained in pernicious anemia, (3) progressive tendency with remissions, (4) absence of central nervous system involvement, such as paresthesia, anesthesia, and other findings of a combined sclerosis usually found in this stage of pernicious anemia, (5) presence of hydrochloric acid in the stomach, (6) pigmentation of pernicious anemia usually gives a history of medication, probably arsenic (7) absence of polychromasia and polychromatophilia. Even though the color index of 1.5 would indicate pernicious anemia, the presence of hydrochloric acid in the stomach and the absence of the other characteristics of the disease, would suffice to rule it out.

From carcinoma of the gastrointestinal tract by (1) absence of pain, (2) pigmentation from malignant growth is of a hemolytic type, giving the usual hemoloidin color, and is evenly distributed, (3) absence of tumor mass in the abdomen.

From general arteriosclerosis by (1) presence of gastric irritability which is usually absent in arteriosclerosis, (2) pigmentation, if present usually comes on more gradually and intensity is not so great, (3) asthenia may be present but is not so severe, (4) blood pressure is usually high.

Metallic pigmentation, from silver, arsenic, etc., usually gives an associated history of occupation or medication, and the symptoms do not come in chronologic order, nor are they of the same nature as this condition.

In Recklinghausen's disease, the (1) pigmentation is blotchy and does not have a predilection for the exposed surfaces, (2) there are numerous subcutaneous nodules along the nerve trunks, and similar growths frequently occur in the spinal canal giving symptoms of tabes, syringomyelia, etc., (3) bony lesions simulating osteomalacia are frequently present.

In vagabonds' discoloration, this condition is diffuse and does not have a predilection for exposed surfaces.

Progress:—Patient was in the hospital one day, feeling much better. While rolling to side, having bed changed, on the following morning, patient became weak and died in an attack of syncope.

Postmortem:—A senile white man, about 70 years of age, weight approximately 100 pounds, five feet nine inches high, with arcus senilis, senile alopecia. Skin markedly atrophic with deep brownish pigmentation. Lungs showed calcified pulmonary glands, moderate old adhesions around left base, anthracosis three plus, no consolidation, moderate hypostasis along posterior aspect of all lobes. Numerous atheromatous changes in aorta, stiffening of valves, myocardial degeneration, marked coronary sclerosis, general high-grade arteriosclerosis.

Abdomen: mesenteric arteriosclerosis, no tumor growths, head of pancreas calcified. Kidneys small, contracted and nodular, capsule firmly adherent; section showed marked increase of interstitium with parenchymal degeneration. Suprarenal bodies were soft, atrophic, with calcified areas; section showed caseous degeneration extending to capsule, approximately 7 cm. long, 4 cm. wide and 1 cm. in thickness. Skin showed marked brownish pigmentation especially over arms, face, neck and genitals, with areas of leucoderma. Spleen was small, capsule stripping readily, no adhesions. (Raney.)

CASE 2. REYNAUD'S DISEASE

Present Illness:—Housewife, whose complaint began three or four years ago, as far as can be determined. It manifested itself, in the onset, by a sensation as of pins and needles, in the lower extremities, which lasted just a few minutes. During this attack there was a marked paling of the affected extremity, which was replaced in a few minutes by a marked reddening, and patient states that during this period of reddening, the skin felt hot to the touch. These attacks occurred periodically during the entire winter, to recur again the following winter, and have recurred each winter since, becoming more severe as the condition progressed. During the last attack of the present winter, the period of paleness was markedly prolonged and followed by a period of bluish coloration which persisted for several hours, to be again replaced by the usual reddening, which finally passed off to normal appearance again. No pain was complained of during any of these attacks; nor was there any swelling and they bore no relation to exercise.

Family and Past History:—Family history negative for cancer; uncle died of tuberculosis to which patient had no immediate exposure; no mental disease in family so far as could be ascertained; no history of diabetes, gout or lues.

Patient has worked hard all her life, taking the place of men doing manual labor. She had measles, mumps, chickenpox and whooping cough during childhood. One attack of pneumonia, mild in character, at age of 14. During the past five or six years patient has noticed some enlargement of the bony prominences about the face, not marked and noticeable principally to herself. Occasional attacks of colds, associated with sore throat, but bearing no relation to the attacks mentioned; some nasal discharge and occasional nose bleed. Mild cough has followed some of these colds, but with no blood in sputum and coughing cleared up in few days. There is no history of cardiac symptoms which could be related to the swelling of the feet; no shortness of breath, cyanosis or other signs of cardiac decompensation. For the past three or four years she has noticed some belching after meals with occasional attack of distention of abdomen with gas; this has not been severe. Appetite is good and food agrees. No pain except an occasional attack of pain about umbilicus sometimes radiating towards right shoulder. Catamenia regular at 28 day intervals, moderate flow lasting seven days, without pain. No urinary symptoms.

The sensation of pains and needles which developed three years ago, were in the left foot and involving about half the leg, occasionally attacking both extremities at the same time. These attacks were not accompanied by pain, have recurred periodically with increasing intensity. During the past two weeks they have become more frequent, lasting several hours. On entering the hospital the left lower extremity had been cyanosed over a period of several hours.

Physical Examination:—Face prominent, masculine in character, coarse featured, bony prominences

marked, especially about the supraorbital arches, zygoma and mandible. Pupils round and equal, reacting to light and accommodation. Several carious teeth with mild pyorrhea alveolaris. Tongue slightly coated. Tonsils somewhat buried and slightly injected. No nasal discharge or abnormalities. No abnormal findings in ears. Skin coarse; hair coarse and dry, slightly streaked with grey. Jugular veins prominent with slight pulsations. Thyroid palpable, slightly enlarged. Some enlargement of submaxillary and posterior auricular glands. No rales or other evidence of chest disease. Heart shows no murmurs, irregularity or enlargement. Blood pressure 136/48; some evidence of lowgrade arteriosclerosis; no tortuous vessels. Some tenderness over epigastrium and especially over right costal margin; no rigidity, no palpable masses, no fluid, no hernia. Palpable lymph glands in inguinal region. Neurological: cranial nerves normal; knee jerks not exaggerated; Babinski, Gordon, Oppenheim and Chaddock absent; sensation to heat and cold diminished on right lower extremity in distal third of leg and foot; no other sensory changes. Cyanosis of skin of left foot, extending up leg about one-third its length; right leg apparently normal. Feet large; great toes larger than usually found on normal adult foot.

Urine; daily output 3500 c.c., amber, cloudy, alkaline, sp. gr. 1008; negative for albumin, sugar, casts and pus cells. Blood; white count 5800, mononuclears 24, polynuclears 76; red count 8,200,000; Hbg., 90.

On admission, temperature was 100, pulse 120, respirations 25 to 30; after two days temperature subsided, pulse returned to normal, respirations remaining as before.

Diagnosis:—Diagnosis of Reynaud's disease was based chiefly on the (1) history of paresthesia; (2) vascular phenomena of ischemia, cyanosis and hyperemia in paroxysmal attacks; (3) coldness of part during attack; (4) suggestive presence of acromegaly or hypopituitarism.

Differential Diagnosis:—From Buerger's disease: this is an acute inflammatory disease, characterized by pain of an excruciating nature (worse at night), elevation of temperature, swelling of the part usually progressing to gangrene. It usually occurs with general arteriosclerosis, is asymmetrical, with the arteries of the affected part of whipcord consistence and pulseless. The paroxysmal attacks experienced by this patient are never present in Buerger's disease. Thromboangiitis obliterans can also be ruled out for similar reasons. In chilblains usually a history of frostbite is given which is absent in this patient. The vascular phenomena of chilblains are that of hyperemia, followed by ischemia instead of the reverse order as seen in this case. Intermittent claudication is angiospastic in nature, usually occurs in old age; attacks are brought on by exercise and are relieved by resting; muscular cramps are usually present during attacks.

DISCUSSION

Reynaud's disease is characterized by vasomotor instability, local in nature, usually bilaterally symmetrical, usually affecting the extremities though other parts may be involved, without organic disease of the blood vascular system. It is most likely a vasomotor neurosis. Etiologically it seems to be associated with or to follow numerous conditions, such as endocrinopathies, especially pituitary and thyroid insufficiency; psychopathies, such as shock, hysteria,

schizophrenia and the manic depressive group of insanities; cerebral and spinal cord organic disease, such as hemorrhage, paresis, syringomyelia, tabes, etc.; lastly, arteriosclerosis, either general or local. The case here reported would seem to be possibly influenced by endocrine and arteriosclerotic factors. Pathologically, Reynaud's disease differs from thromboangiitis obliterans in that the latter shows definite inflammatory vascular change, while in Reynaud's there is no change other than possibly an arteriosclerosis that exists in everyone during middle and late life. Symptomatically, the condition even though not exactly symmetrically bilateral in the case reported, still it shows a tendency to be of that nature, for, as will be remembered from the history, there is a suggestion of a mild right extremity attack at times during the left sided attacks. Even were the condition strictly unilateral, the diagnosis would still most logically be Reynaud's disease.

The treatment is often without avail, as the underlying conditions are frequently unmodifiable. Good general health should be maintained. Patient should be kept free from excitement or worry or anything which will stimulate the emotions and thereby influence vasomotor change. Mild massage and local heat during the attacks are indicated. Thyroid extract has been tried, with no beneficial results, in some of the endocrinopathic cases. In the presence of psychopathic disorder, psychotherapy should be resorted to. Tourniquet to the affected parts until spasm is relieved is of symptomatic value. Nitroglycerin has been tried with only poor results in the majority of cases where used.

ARIZONA STATE MEDICAL ASSOCIATION

Thirty-Seventh Annual Meeting, Tucson, Ariz., April 19-21, 1928

COUNCIL MEETING

The Council of the Arizona State Medical Association met at the Santa Rita Hotel, Tucson, on April 18, at eight p. m., with the following members present:

Dr. Charles S. Vivian, president;
Dr. A. C. Carlson, president-elect.
Dr. D. F. Harbridge, secretary.
Dr. W. C. Todt, councilor for the northern district.

Dr. W. Warner Watkins, councilor for the middle district.

Dr. C. A. Thomas, councilor for the southern district.

Dr. H. T. Southworth, representing Dr. C. Yount, treasurer.

Minutes of the previous council meetings were read and approved.

Upon the suggestion of Dr. Harbridge, motion was made that Dr. Watkins be asked to act as

reporter for this annual session, under the same arrangement as last year. Dr. Todt moved that this be done; it was seconded by Dr. Thomas and carried.

Dr. Southworth presented the treasurer's report, as follows, which is appended, and also read the report of the auditing committee.

TO THE COUNCIL AND HOUSE OF DELEGATES,
ARIZONA STATE MEDICAL ASSOCIATION:
Gentlemen:

I present herewith Treasurer's report for the year ending April 12, 1928. (Books closed this date).

GENERAL STATEMENT

Total Receipts, all sources:

Balance General Fund, 1927	\$ 1,158.73
Dues, 1927, 236 members at	
\$10.00	2,360.00
Check, Gila Co. Society (later deducted)	20.00
Defense Fund	3,190.60
Savings Fund	1,925.03
U. S. Bonds	5,000.00

Total receipts all funds.....\$13,654.36

Total disbursements all funds

Total balance all funds\$12,576.32

ANALYSIS AND STATEMENT BY FUNDS

(1) General Fund:

Receipts all sources:

Balance from 1927	\$1,158.73
236 members pro rated at	
\$4.00 General Fund	944.00
236 members pro rated at	
\$6.00 Medical Defense Fund	1,416.00
Check Gila Co. Secretary.....	20.00

Total receipts General Fund \$3,538.73

Disbursements, Duly Authorized, from General Fund:

A. C. Taylor Printing Co.	\$ 38.00
Southw'trn Medicine, Reporting	125.00
Southw'n Med. 242 members	484.00
D. F. Harbridge, Secy., Office Expense	60.00
W. C. Cain, Return Yuma dues	10.00
Martindell, Horn & Co., trans. bonds	25.00
A. C. Taylor Printing Co.	15.00
Central Florist	15.00
Lou G. Shipley	17.52
D. D. O'Neil, Multigraph	4.60
Sloan, Holton, McKesson & Scott	100.00
Bank Arizona, Safety Deposit Box	4.00
D. F. Harbridge, Secy., Office Expense	60.00
D. F. Harbridge, Secy., Office Expense	60.00
A. C. Taylor Printing Co.	13.25
St. Louis Button Co.	26.67

\$1,058.04

Gila County check deducted by Bank

\$1,078.04

Liquidated Medical Defense

Account to date\$1,312.00 \$2,390.04

Balance in Bank of Arizona, General Fund, April 12

1928\$1,148.69

(2) Defense Fund:

Balance from 1927	\$3,066.72
Interest June 30, 1927	61.32
Interest December 31, 1927	62.56
236 Members pro rated at \$6.00 for Medical Defense	1 416.00

Total receipts	\$4,606.60
Total Expense Medical De- fense, paid out of General Fund:	

Sloan, Hatton, McKesson & Scott	100.00
Rent, Safety Deposit Box	4.00

Balance, Defense Fund, April 12, 1928	\$4,502.60
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(3) Savings Fund:

Balance Yavapai County Sav- ings Bank 1927	\$1,661.62
Interest June 30, 1927	15.25
Interest, December 31, 1927	35.66
June 30, 1927, Semi-annual cou- pons from Bonds	106.29
Dec. 16, 1927, Semi-annual cou- pons from Bonds	106.21

Balance in Yavapai County Savings Bank April 12, 1928	\$1 925.03
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**(4) Total Amount Available for
Medical Defense:**

Defense Fund	\$4,502.60
Savings Fund	1,925.03
United States Bonds (First Liberty Loan)	5,000.00
	\$11,427.63

**(5) Total Earnings—Since 1927
Report:**

Defense Fund, interest	\$ 123.88
Savings Fund, interest	40.91
Coupons, U. S. Bonds	212.50
	\$ 377.29

**(6) Total Expense Shown—
Charged against the Proper
Funds:**

General Fund	\$ 974.04
Medical Defense, Attorney's fee	100.00
Safety Deposit Box	4.00
Gross Receipts all sources	\$13,654.36
Total disbursements	1,078.04
Total Balance, all Funds	\$12,576.32

**(7) List of U. S. First Liberty Loan (Converted)
Bonds 4½% Purchased July 6, 1926:-**

Denomination	Serial Number
100	D-00611504
100	B-00885317
100	A-00885316
100	D-00767759
100	E-00767760
500	E-00185115
500	E-00185125
500	A-00185126
1000	C-00100648
1000	E-00181905
1000	C-00135013

(8) Recommendations:

1. That our by-laws be amended to provide that the Treasurer be a bonded officer and that the amount of said bond be commensurate with the amount of money for which he is responsible.

2. That another Five Thousand Dollars (\$5 000) of U. S. Bonds, the best obtainable, be purchased and that all bonds, the property of the Association, be registered.

3. On the basis of "earnings" from two funds and interest on bonds, \$377.29, during the year while the cost for Medical Defense for that period

was only \$104.00, I would recommend to the Medical Defense Committee the feasibility of a reduction in Annual Dues to \$9.00.

4. The paid membership to date this year is 236, or six less than reported at the last annual meeting. This would seem to indicate the need for more strenuous effort on the part of County Secretaries to collect all dues at least one month prior to the annual meeting.

Respectfully submitted,

C. E. YOUNT, Treasurer.

We, the undersigned, a committee duly appointed by President Charles S. Vivian, have audited the books of the Treasurer and inspected the Bonds in his custody, and find them correct.

H. T. SOUTHWORTH,

R. N. LOONEY

Dr. Carlson raised the question as to the advisability of leaving the matter open so that the treasurer could buy other bonds which would pay a better interest rate than four and a half per cent.

Dr. Carlson made motion that the treasurer's and auditor's reports be approved as read, except for the recommendations; seconded by Dr. Thomas and carried.

With regard to the first recommendation of the treasurer (see above), motion was made by Dr. Thomas that the Council present an amendment to the by-laws in conformity with this recommendation. Motion was seconded and carried.

With regard to the second recommendation, Dr. Carlson made motion that this be adopted without the limiting words "U. S." Motion was seconded and carried.

With regard to the third recommendation (reduction of dues), motion was made by Dr. Harbridge that this be not approved. Seconded by Dr. Thomas and carried.

On the fourth recommendation of the treasurer, no action was taken.

Report of the Committee on Medical Defense was presented by Dr. Harbridge for discussion and inclusion in the report of the Council to the House of Delegates. After some discussion of the importance of the matters referred to in the letter from the attorneys, motion was made that said letter be spread on the minutes. Amendment to this that the attorneys be sent a letter of thanks from the Association for their interest and fine analysis of a court decision in a case in which they took no part. Motion was seconded and carried. (For this report and letter see minutes of first meeting of House of Delegates.

Dr. Watkins spoke of the fine work which the Yavapai County Medical Society is doing in their study of Cakot Case Histories. He outlined a plan for utilizing this work in arousing interest in other county societies, and asked for an appropriation not to exceed \$200.00 for stenographic services in placing a reporter in the Yavapai County meetings to secure their discussions. These discussions to be used in SOUTHWESTERN MEDICINE according to the plan outlined.

After some discussion, motion was made that expenditure for this purpose up to \$200.00 be authorized. Motion was seconded and carried.

Council adjourned sine die.

HOUSE OF DELEGATES

The first session of the House of Delegates met on Thursday, April 19, at 8 a. m., at the Santa Rita Hotel. Present:

President—Charles S. Vivian.

President-Elect—A. C. Carlson.

Secretary—D. F. Harbridge.

Treasurer—C. E. Yount.

Councilors—W. C. Todt, C. A. Thomas, W. W. Watkins.

Delegates—

Coconino County—M. C. Fronske.

Graham County—J. M. Morris.

Gila County—R. D. Kennedy, C. W. Adams.

Maricopa County—A. J. McIntyre, H. T. Bailey, R. J. Stroud.

Pima County—L. E. Huffman, W. V. Whitmore, Meade Clyne, C. S. Kibler.

Yavapai County—J. W. Flinn.

Yuma County—H. A. Reese.

The minutes of the last meeting of the House of Delegates in Yuma in 1927, were read and adopted by motion.

Report of the Council to the House of Delegates was read by the secretary as follows:

Report of the Council to the House of Delegates:

The report of the Treasurer shows a balance at the close of the year on April 12, 1928, as follows:

General Fund\$ 1,148.69

Defense Fund\$11,427.63

Total expenditures for the year have been:

General Fund\$ 1,078.04

Medical Defense\$ 104.00

The report has been approved by the auditing committee (Drs. Southworth and Loonev).

The following recommendations were made by the Treasurer and considered by the Council:

(1) That our by-laws be amended to provide that the Treasurer be a bonded officer and that the amount of said bond be commensurate with the amount of money for which he is responsible.

This recommendation is approved by the Council who present the following proposed amendment to the By-Laws:

That the first sentence in Sec. 4. Chap. V of the By-Laws be amended to read: "The Treasurer shall be bonded in such sum as will be commensurate with the amount of money in his charge."

2. That another Five Thousand Dollars (\$5,000.00) of U. S. bonds, the best obtainable, be purchased and that all bonds, the property of the Association, be registered.

The Council approve this recommendation, with the change that the words "U.S." be omitted, thus allowing the purchase of any type of bond which the Council or its delegated officers may choose.

3. On the basis of earnings from the funds and interest on bonds, \$377.29 during the year, while the cost for Medical Defense for that period was only \$104.00, I would recommend to the Medical Defense Committee the feasibility of a reduction in Annual Dues to \$9.00.

The Medical Defense Committee has no authority to reduce dues, and the Council voted not to approve this recommendation.

4. The paid membership this year is 236, or less than reported at the last annual meeting. This would seem to indicate the need for more strenuous effort on the part of County Secretaries to collect all dues at least one month prior to the annual meeting.

The Council sympathizes with this sentiment, but the suggestion contained nothing for the Council to act on.

The report of the Medical Defense Committee was approved by the Council, and is herewith transmitted to the House of Delegates in full.

The Council voted an appropriation of \$125.00 to Dr. Watkins for acting as reporter for this session, this amount to be paid to Southwestern Medicine for improvement of the journal.

The Council voted to appropriate an amount up to \$200,000, as may be necessary, for stenographic services in making available to the other county

societies of the state, the discussions of Yavapai County-Fort Whipple groups, of Cabot's Case histories, according to a plan outlined by the editor of Southwestern Medicine. This journal, the secretary of the Yavapai County Society, the councilors of this Association, and other officers of the Association—to cooperate in building up interest in this study program.

CHAS. S. VIVIAN,

President.

D. F. HARBRIDGE,

Secretary.

Dr. Flinn inquired how much of the special fund is now in government bonds and how much is held in the bank. Dr. Yount quoted the figures from his report (q.v.)

(Note: While reporter went to get treasurer's report Dr. W. C. Todt, councilor for the northern district was called upon to make his report as councilor. This report was presented as follows:

Report of Councilor of Northern District

(Dr. W. C. Todt, Kingman)

The outstanding accomplishment in the Northern District was the meeting on March 22nd, at Flagstaff, when the first district councilor meeting yet held in Arizona under the newly adopted constitution, was consummated.

In an attempt to make the meeting a success, the program followed practical lines, and the response of the members resulted in a gratifying attendance. Papers were presented by Dr. A. C. Carlson, the president-elect of the State Association, Dr. D. F. Harbridge, secretary of the Association, Dr. M. G. Fronske of Flagstaff and Dr. G. F. Manning of Flagstaff. As a special feature, members of the Yavapai County-Fort Whipple organization put on one of their well known discussions of Cabot's Case Histories.

There were two subjects for general discussion, namely: "The Milk and Water Supply of a Small Community," and The Medical Profession, the Industrial Commission and the Insurance Carrier."

The Coconino County Medical Society acted as host and entertained the visitors with a dinner at the Monte Vista Hotel.

The meeting began promptly at ten o'clock and adjourned at four o'clock, thus enabling all visitors to return home in season. Similar meetings are to follow.

Dr. Harbridge explained that the treasurer had recommended that another \$5000 he invested in U. S. Bonds, and the council concurred so far as the investment of further bonds is concerned, but desired to leave the matter open as to the kind of bonds, and therefore struck out the words "U. S."

Dr. Flinn thought that the matter is one in which we could not be too careful; this is a trust fund collected with considerable difficulty over a period of years, and the Council certainly has a little too much confidence in the business ability of any officer, when they allow him to choose the kind of bonds he will buy. He moved that the Council be asked to rescind its action in this matter and that the investment by the treasurer be limited to the purchase of U. S. government bonds. Dr. Huffman seconded the motion, and stated that the money should be so invested that it can be turned into cash at any time it is needed for medical defense.

Dr. Carlson without opposing the motion, explained why the Council took this action; in order to secure a higher rate of interest, for example, if five and a half per cent bonds just as sound as U. S. bonds, were available.

Dr. Stroud stated that at present bonds are high and interest rates low, and that the U. S. bond is the most constant of all bonds. Other bonds

will fluctuate. Bond salesmen will tell you that any bond purchased now will depreciate within the next ten years, and the U. S. bond will not fluctuate except to rise in value.

Motion was put and carried.

Dr. Huffman moved the adoption of the Council's report, as amended; seconded by Dr. Kennedy. Carried.

Dr. Harbridge then read the report of the Committee on Medical Defense, as follows:

Report of Medical Defense Committee

Fortunately, during the past year, work by this committee has been very small. Two cases are pending, Dr. L. S. Campbell, Yuma, and Dr. Melick, Williams. There has been no activity in the first, in the second an overture was made by the prosecution for a settlement, but on the principle of "Everything for defense, and not one cent for tribute," the proposition was rejected.

Total expenses\$104.00

Amount of Medical Defense Fund \$11,427.63

It is hoped that within a few years, with our lessening expense, this fund will be self sustaining.

JOHN E. BACON, Chairman.

F. T. WRIGHT

D. F. HARBRIDGE.

The following letter from the Association's attorneys (Sloan, Holton, McKesson and Scott, of Phoenix,) is presented as a part of the report of this Committee.

During the year since we last reported to you, there has been little change in the status of the cases in which the Medical Association is interested. There have been no new cases referred to us. The case of Waugh vs. Campbell of Yuma has not been tried. During a recent trip to Yuma, the writer made some inquiry and found that the plaintiff in this case is, and has been for a long time absent from Yuma, and it would appear that the probability of that case ever coming to trial is very remote. Even should they attempt to try this case, we are confident that no recovery would be possible. We do not believe that the plaintiff would be able to find any reputable physicians who would testify to any want of skill or care on the part of the doctor in his treatment of the plaintiff.

The case of Jack Flanigan vs. A. C. Rounseville and P. A. Melick in the Superior Court of Coconino county is still pending. There has been some effort made recently to have that case set down for trial, but thus far no date has been fixed. We have received renewed suggestions from the attorney employed by Dr. Rounseville that the case could be settled for a small amount. We have, however, discouraged any attempt at settlement upon the theory that the Association has a moderate amount of money for defense but not one cent for tribute. We do not believe that the Flanigan case presents one of want of skill on the part of the physician such as would entitle the plaintiff to a recovery. Up to the present time no plaintiff has ever recovered against a physician in this state where the Medical Association has come to his defense, and no compromises of such cases have been made so far as we know and we want to continue this record. As we have often stated, we consider it a bad policy to compromise any of these cases. Malpractice cases against reputable physicians have been a very poor paying branch of the legal profession in this state and every effort should be made to continue that condition.

With regard to the Flanigan case, involving as it does x-ray treatments, the recent case of Butler vs. Rule, decided by the Supreme Court of Arizona is very interesting. The facts in that case are these: Lucille Holloway had been examined prior to March 19, 1923, by Dr. S. C. A. Peterson and

Victor Gore who diagnosed her ailment as sarcoma and found the disease in such an advanced stage that a surgical operation was deemed impracticable or useless. They suggested that she go to Dr. Butler for x-ray treatments. These treatments, according to the findings of the Court actually did result in burns. Some months after the treatments the patient died.

In the trial court at Tucson a verdict was rendered in favor of the plaintiff and against the defendant Dr. Butler from which the defendant appealed to the Supreme Court of the State of Arizona. Of the errors assigned on the part of the trial judge, the Supreme Court took notice of those which raised the question of the degree of care required of a physician in the treatment of diseases, and as this question is one of considerable importance to those practicing medicine in the State of Arizona, we think it well to call attention to the Court's decision and the principles involved. Dr. Callander, an expert witness in the case, was asked whether or not in the use of an x-ray machine in administering x-ray treatments called deep therapy the highest degree of care should not be exercised. The Supreme Court held that the foregoing question was improper in this that the question of the degree of care required of a physician is a question of law for the court to determine, and second, that the question implied a higher degree of care on the part of the physician than the law requires. The same question was involved in an instruction submitted by the Court to the jury. That instruction was in the following words:

"However, if you should believe from a preponderance of the evidence that the reasonable care and skill required of, or usually exercised by, physicians in good standing who are operating x-ray machines is a high degree of care, then the defendant in this case would be held to a high degree of care."

In deciding that the question propounded to the expert witness and the instruction given to the jury were erroneous, the Court quotes with approval the following principle of law:

"The law thus requires a surgeon to possess the skill and learning which is possessed by the average member of the medical profession in good standing, and to apply that skill and learning with ordinary and reasonable care. He is not liable for mere error of judgment provided he does what he thinks is best after a careful examination. He does not guarantee a good result, but he promises by implication to use the skill and learning of the average physician, to exercise reasonable care, and to exert his best judgment in the effort to bring about a good result."

The Court further enunciates the following important principle:

"The degree of care of a physician in good standing operating an x-ray machine is the same as physicians and surgeons in the general practice."

citing numerous cases from many jurisdictions in support thereof.

Basing its action upon the errors which we have referred to, the Court reversed the case and remanded it to the lower court for a retrial, the date of the decision being January 7, 1926.

The case was retried in the Superior Court at Tucson and again a verdict in favor of the plaintiff and against the defendant was rendered by the jury from which verdict an appeal was again taken to the Supreme Court of the State of Arizona.

In the opinion in the latter instance the Court held that the evidence was clear that there was a serious burn and that it may have been due

to an overdose but held, that irrespective of that fact, the burden was on the plaintiff to show that not only was the physician negligent but that such negligence was the cause of the death; that the question of cause was a question of fact to be proven by competent evidence and that competent evidence in that instance was expert evidence. The Court held that there was no expert testimony that the negligence, assuming that there was negligence, was the proximate cause of death, and for that reason the plaintiff had failed to carry the burden of proof imposed by law, and reversed the decision and dismissed the cause.

Both of these opinions were written by Chief Justice Henry B. Ross and in our opinion lucidly and decisively state the law as heretofore adopted in numerous jurisdictions. They are of great importance in that they settle law points not heretofore decided within the State of Arizona, and there is no longer any question of where we stand in so far as the issues involved in that case are concerned.

With best wishes for the success of the Association, we are

Yours very truly,

SLOAN, HOLTON, McKESSON & SCOTT,
By C. R. Holton.

Dr. Yount called attention to the fact that the interest on the bonds more than paid the expenses of medical defense during the past year.

Dr. Vivian stated that since the Council had already heard and approved the report of this Committee, and the House of Delegates had approved the report of the Council, no further action was required on this report. The important part of the report is that this Supreme Court decision is the first of its kind in Arizona and settles several legal points for us.

Dr. Watkins also commented on the importance of this, and stated that while the decision referred explicitly to x-ray injuries, it establishes a principle of law which is applicable to all forms of medical practice. In many states the occurrence of an x-ray injury is, in itself, evidence without expert testimony, but this decision requires expert testimony in addition, that the injury was due to negligence.

The report of the Secretary was presented, as follows:

Secretary's Annual Report

The usual routine business of the office has been carried on.

Members in good standing in the State Association on April 1, 1928 were 236.

A special letter written by the secretary and enclosing a pamphlet setting forth the value of HYGEIA was mailed to prospective subscribers throughout the state. The lists of names were supplied by secretaries of the various county societies. About five hundred such letters were addressed. The Business Manager, Mr. Cargill, informs me that he has received twenty-four subscriptions so far as a result. The names were forwarded to Mr. Cargill who will follow the matter up from the home office. This method of stimulating interest was an innovation and Mr. Cargill expressed a desire that each year a similar campaign be carried on.

The secretary attended the annual meeting of State Secretaries at the A.M.A. building, Chicago. Among several subjects discussed was one of especial interest, "Periodic Conferences Between Officers of Associations of Adjoining States." The proceedings of this conference may be consulted in the Association Bulletin.

D. F. HARBRIDGE, Secy.,

Arizona State Medical Assn.

From memorandum in Secretary's Office.

Dues transmitted to the Treasurer since meeting April 21, 1927.

4-25 Cochise	\$10.00	2-28 Gila	\$210.00
4- 2 Santa Cruz ..	10.00	3-10 Yuma	90.00
4-26 Cochise	10.00	3-15 Yavapai	40.00
4-27 Maricopa	10.00	3-20 Santa Cruz...	40.00
6-23 Pima	10.00	3-28 Pima	410.00
7-16 Cochise	20.00	3-28 Coconino	50.00
11- 5 Mohave	10.00	3-28 Cochise	240.00
12-12 Navajo	10.00	3-29 Maricopa	800.00
2- 8 Navajo		3-29 Mohave	30.00
2- 8 Greenlee- Graham	50.00		
2-16 Yavapai	60.00	4- 2 Cochise	10.00
2-20 Yavapai	30.00	4- 5 Gila	10.00
2-20 Graham	60.00	4- 3 Yavapai	40.00
	340.00		1970.00
			340.00
			\$2310.00

Requisitions made on Treasurer from general fund received and paid.

Expenses 1927-1928.

4-28 W. W. Watkins, Stenog, Report meeting	\$125.00
4-28 W. W. Watkins, Ed. So. West. Med. 242 members	484.00
5-26 Martindell Horne & Co. Premium on Treas. Bond	25.00
5-26 Bank of Ariz. Safety Deposit Box	4.00
5-26 Dr. W. C. Cain, Ret. Membership dues to Dr. J. Wagner Ives, non-elected	10.00
5-25 D. F. Harbridge, Secy. Expenses Due 1-1-27	60.00
6-23 A. C. Taylor Prtg. Co., 400 Copies Const. & By-Laws	15.00
6-23 Central Florist	15.00
10-20 Lon G. Shieler, Stenographic	17.52
12- 8 D. F. Harbridge, Secy. Due July 1	60.00
2- 8 Taylor Prtg. Co., Printing, etc.	13.25
2- 8 W. D. O'Neil, Hygeia	4.60
2- 8 D. F. Harbridge, Secy. Office Due 12-31-27	60.00
3-16 St. Louis Button Co.	26.67
3-29 Wm. Todt, Expenses, North Dist Council Meet, Flagstaff, 3-22-28	6.50

926.54

Medical Defense Expense.

2-8 Sloan, Holton & Scott Annual retainer 100.00

Dr. Harbridge stated that the financial portion of his report is slightly different from that of the treasurer, because they are taken from different dates.

Dr. Harbridge stated, with reference to Hygeia, that he had sent out a letter to each county secretary, asking for a list of names of citizens who might become subscribers; practically every county sent in from twenty-five to a hundred names, and to each of them a personal letter was written, calling attention to Hygeia; further, the list was sent to the American Medical Association; those who subscribed were checked off and the balance written to by the National Association. A large number of subscribers were obtained in this manner. Motion was made that the report be accepted as read. Seconded and carried.

Dr. Watkins made report as counselor from the middle district as follows:

Report of Councilor of the Middle District:

Sec. 2, Chapter VI, of the by-laws defines the duties of the councilor: "Each Councilor shall be the organizer, peacemaker and censor for his district. He shall visit each county in his district at least once a year for the purpose of organizing component societies where none exist, for enquiring into the condition of the profession, and to

keep in touch with the activities of, and to aid in the betterment of the component societies of his district. He shall make an annual report of his work, and of the condition of the profession of each county in his district, at the Annual Session of the House of Delegates."

The Councilor of the Central District wishes to report that there has been no occasion for him to function as peacemaker or censor in the counties under his jurisdiction—namely Yuma, Maricopa, Gila, Graham and Greenlee. All is quiet along the Gila and Salt Rivers. The profession of these counties are busily engaged in practicing medicine in peace and harmony. There has been no violation of medical ethics. No patients have been pilfered; there have been no unkind remarks behind backs; the Golden Rule is being diligently practiced, and fraternal love reigns supreme.

The Councilor has functioned once as organizer, in a very delightful meeting in Safford, when the Graham County Medical Society was organized, and I bring you their application for affiliation with this Association, as a component medical society. They have six charter members, as follows:

James W. Morris, Safford, Ariz., graduate of Memphis Hospital Medical College, 1894, licensed in Arizona in 1919.

H. W. Squibb, Safford, Ariz., graduate of Washington University, St. Louis, 1915; licensed in Arizona in 1925.

Geo. W. Langdon, Safford, Ariz., graduate of University of Colorado, 1914; licensed in Arizona in 1927.

J. Newton Stratton, Safford, Ariz., graduate of Southern Methodist University of Texas, 1907; licensed in Arizona in 1907.

Wm. E. Platt, Thatcher, Ariz., graduate of University of Louisville, 1904; licensed in Arizona in 1903.

R. C. Dryden, Pima, Ariz., graduate of Missouri Medical College, 1880, licensed in Arizona in 1909. Dr. Dryden was one of the charter members of the Arizona Territorial Medical Association in 1892; he then was away from Arizona for a number of years, returning in 1908.

The officers elected to serve during 1928 were as follows:

J. Newton Stratton, Safford, President.

Wm. E. Platt, Thatcher, Vice-President.

Geo. W. Langdon, Safford, Secretary-Treasurer.

The activities of the county societies are nothing to brag about. The Councilor has been unable to visit a society gathering outside of Maricopa County, through inability to find out when one was to be held. We believe the counties of this district, like almost all of the other county societies of Arizona and all other states excellently illustrate what Dr. Olin West, secretary of the A. M. A. recently said—that the county society is deteriorating all over the country, and today, instead of being the bulwark of the national organization, is its weakest unit.

We believe the county societies of this district are not dead beyond hope of resuscitation. Plans are being made which we have hopes will fan into flame the feebly flickering spark of professional pride in several of these societies, and awaken in them a desire for some worth while accomplishment through organized medicine. At least plans which will shortly be proposed are entirely capable of doing this for any society which possesses the necessary intestinal fortitude to absorb and digest these plans.

We have hopes and the councilor who can still hope after the experiences of the past year in the middle district, deserves commendation.

W. WARNER WATKINS,
Councilor of the Middle District.

Motion that the report be accepted was made and carried.

Dr. Flinn suggested that Dr. Whitmore, as the dean of the profession in this Association, present the motion admitting Graham County Medical Society to full rights in the Association.

Dr. Whitmore stated that it gave him great pleasure to move that the Graham County Medical Society be admitted to membership as a component county society in the Association.

Motion was seconded and carried.

Dr. J. M. Morris, delegate from this Society, in responding, stated that they had quite a little struggle to get organized, but thinks they will have a successful society.

Report of the Councilor for the Southern District. Dr. C. A. Thomas, was given. Dr. Thomas stated that he was sorry not to have something concrete to report, like the other councilors. His own county (Pima) is functioning, has regular meetings—sometimes. Made a visit to Santa Cruz on two occasions, and found them hopelessly snarled in that county. Apparently they meet only once a year and elect officers, and then adjourn until the next year. Cochise County has had a let-down in activity and he (councilor) has been unable to learn of their meetings; they have new officers and hopes to follow them up next year. Motion was made that report be accepted; carried.

Report of the Program Committee was made by Dr. Carlson, who stated that the program this year promises to be an excellent one. He thinks the local member of the committee should be the chairman, but made no motion to change the constitution.

Dr. Watkins called attention to the omission of the president's address from the program, and made motion that it be given at the opening of the afternoon general session. Motion was seconded and carried.

Report of the representative on National Legislation was called for. Dr. Flinn stated that he has no special report. They are talking of two things in Washington, of interest to the medical profession. One is the matter of deducting the expense of postgraduates study and attendance at meetings from the income tax; apparently other professions can do this, but the medical profession cannot. The other is the effort of the irregular practitioners to establish themselves in the District of Columbia. Our senators and representatives are willing to cooperate with us in every possible way in these matters.

Dr. Kennedy called attention to the fact that the matter of deductions from the income tax report is a ruling of the Treasury Department, which has interpreted the tax law in such a way that they do not allow physicians to make this deduction. The question is one of getting the Treasury Department to change their ruling.

Dr. Stroud added that prior to 1922 physicians could make this deduction and then the ruling was changed, placing the physicians in a class to themselves.

Dr. Flinn stated that Dr. Kennedy is right, as always, but as an Association we could only attempt to secure the aid of our congressman and senators to bring pressure on the Treasury Department.

Motion that the report of the national committeeman be approved; motion carried.

Report of the Board of Managers of Southwestern Medicine was called for. Dr. Harbridge stated that the journal speaks for itself and that the Board members are satisfied with the journal.

Under the item of Unfinished Business, Dr. Thomas spoke of the matter of postgraduate extension work by the University, which matter was

left in his hands last year at the Yuma meeting. Plans were being formulated, but when the Medical & Surgical Association of the Southwest organized a clinical congress last November, along quite similar lines, thought it just as well to hold the matter in abeyance for a time. Thinks we could get the hearty cooperation of the University, if we wish to attempt such a plan for the coming year.

Dr. Watkins mentioned the pending negotiations with the University of New Mexico, by the Medical & Surgical Association, for a conjoined congress in Albuquerque in November, and suggested that we might be in position to learn how feasible the plan is, by observing their success.

Dr. Flinn made motion that the committee be continued to study the question; he stated that he thought the committee used good judgment in not trying to hold such a meeting this year. Motion was seconded and carried.

Committee on Necrology was appointed, consisting of Drs. Stroud, Fronske and Morris.

Attention was called to the schedule of an open meeting for Saturday (April 21), and election of officers on Friday (April 20), whereas the constitution provides for election of officers at the last meeting of the House of Delegates.

Motion was made that the last open meeting be on Friday and that Saturday's meeting be an executive meeting. Seconded and carried.

House of Delegates adjourned to meet in executive session at luncheon on Friday, April 20th.

The House of Delegates convened at luncheon, in executive session, at the Old Pueblo Club, Tucson, April 20, 1928.

President: A. C. Carlson (president); D. F. Harbridge (secretary); C. E. Yount (treasurer); C. A. Thomas (councilor); W. C. Todt (councilor); W. W. Watkins (councilor); M. G. Fronske (Cocoon County); J. M. Morris (Graham County) R. D. Kennedy, C. W. Adams and N. D. Brayton (Gila County); O. H. Brown, W. W. Wilkinson, H. T. Bailey, J. M. Greer, Dudley Fournier, A. J. McIntyre, W. O. Sweek, Kimball Bannister, G. E. Goodrich and R. J. Stroud (Maricopa County); I. E. Huffman, C. S. Kibler, W. V. Whitmore, Meade Clyne (Pima County); John W. Flinn and J. T. Taylor (Yavapai County); H. D. Ketcherside (Yuma County).

Report of the Committee on Periodic Health Examination was presented as follows:
To the Arizona State Medical Association:

Your Committee on The Periodic Health Examination has given the question considerable study and at least two demonstrations before the Maricopa Medical Society.

There are several points in this problem which must be met: (1) Some physicians are not convinced that the so-called healthy man should be examined; (2) Some of us are not competent, at the present time, to make the Health Examinations with such care and thoroughness as to be creditable; (3) The examinations should be made with a reasonable grade of uniformity—requiring as minimum for each examination about 40 minutes; (4) Those physicians who do not favor the examinations or who do not wish to take the time to prepare themselves to make them in a satisfactory manner should say so and refer the persons seeking examination to those who do show themselves competent and in spirit with the propaganda; (5) The physicians who wish to make the examinations and feel the need of brushing up thereon should group themselves together and perfect themselves in the making of the examinations which any of us can do by diligent application; (6) The Association should set a date for inaugurating propaganda throughout the state

to arouse sentiment for the examinations; (7) The officers of the Association might well assume personal charge of this important program and propaganda.

Respectfully submitted

By the Committee:

R. J. STROUD, M.D.

D. F. HARBRIDGE, M.D.

ORVILLE HARRY BROWN, M.D.

Acting Chairman.

Dr. O. H. Brown said that he preferred to comment on the Radio Program Committee appointed two years ago. As a representative of this Association, of the Maricopa County Medical Society and of the Gorgas Memorial has given radio talks each Thursday evening for five minutes. The physicians interested have been asked to give these talks; he is now getting the material from the Gorgas Memorial so that the preparation is not laborious, though some of these require editing. Motion was made that the report be adopted; seconded.

In discussion Dr. Harbridge thought it might be advisable to have a definite time when this program of health examination would be put on in the various county societies, so that delegated members can take the matter in hand and put it over through various clubs and organizations. Blanks can be secured from the A. M. A. at small cost.

Dr. Ketcherside thought there would be much interest if the matter is gone into in the proper way. There must be a fixed routine for the examination, because unqualified persons will try to capitalize it, as soon as propaganda starts. We must have a fixed form of examination.

Dr. Harbridge stated that these blanks can be secured only by members of the state association.

Dr. Sweek thought the matter was a drift toward state medicine, as it is found in England, and that we have not given it enough thought.

Motion was put and carried.

Under new business, Dr. Stroud suggested that this Association take up with other state associations the matter of the income tax deductions, and endeavor to secure their cooperation.

Dr. Sweek stated that two lines in one paragraph in what is known as the Robinson amendment is all that requires changing.

Dr. Kennedy again called attention to the fact that this matter is not pending legislation but an effort to secure a change in decision by the Treasury Department.

Motion was made that the secretary be instructed to wire our senators and representatives and inform them of the action of this Association.

Dr. Flinn said that he thought the telegrams would do no harm. Inclined to think that the proper channel of communication is through the A. M. A. The correspondence which comes to us is from the A.M.A., and have no doubt that they are keeping in close touch with Washington. Any resolution passed by us should go to the A.M.A. and let them communicate with other state associations.

Motion was put and carried.

Dr. Todt stated that the state secretary does not have a complete list of the physicians of the state, evidently because the county secretaries fail to report all the doctors in their respective counties. The blanks furnished for this purpose are intended to secure a complete roster of all doctors in the state. This is often important, and the county secretaries should bear this in mind.

Dr. Wilkinson spoke of the importance of the full time health officer, mentioning the three counties in Arizona which have such officers, and introduced a resolution stating that the Associa-

tion approves of the full time health officer for the state and in the various counties.

Motion was made that this matter be referred to the Committee on Public Welfare as a matter worthy of their study and consideration. Motion was seconded and carried.

Executive Session adjourned to the open session in the Scottish Rite auditorium.

The Open Meeting of the House of Delegates convened at 1:30 p.m., in the Scottish Rite auditorium; since this was a continuation of the Executive Session, roll call was dispensed with.

Report of the Committee on Necrology was presented by Dr. Stroud, as follows:

It is always with great regret that we must take cognizance of the passing of some of our members. During the past year we have lost three members by death; two were men who had grown up with their communities and had gained respect as citizens as well as physicians. One was a young man who was just beginning to reap the rewards of his early years of practice, when his career was terminated by accident.

These members lost by death are:

Dr. A. G. Schnabel, of the Pima County Medical Society, who died August 10, 1927.

Dr. Geo. P. Sampson, of the Navajo-Apache County Society, who died March 23, 1928.

Dr. E. B. Turnage, of the Pima County Medical Society, who died January 16, 1928.

Dr. Stroud read resolutions of the Pima County Medical Society relative to Dr. Schnabel and Dr. Turnage, previously published in **SOUTHWESTERN MEDICINE**.

Regarding Dr. Sampson, Dr. Stroud said that certainly every other secretary of every other county society could well emulate the example of this man as a physician, society officer and citizen.

President Carlson stated that he would entertain a motion that this report be adopted and suitable resolutions be spread on the minutes, sent to the respective families and published in the official journal. Motion was made, seconded and carried.

The amendment proposed by the Council to Sec. 4, Chapter IV of the by-laws, relative to the bond of the treasurer was declared in order. Motion by Dr. Todd that the proposed amendment be adopted. After some discussion over the proper wording, Dr. Huffman made motion that the by-laws be changed to conform to the recommendations of the treasurer. Motion seconded by Dr. Flinn, and carried.

Election of officers being declared in order, the nomination of delegate to the American Medical Association was called for. Dr. Taylor nominated Dr. R. D. Kennedy. Motion was made, seconded and carried that nominations be closed and the secretary cast the ballot of the Association for Dr. Kennedy. Dr. Kennedy was declared elected.

As alternate delegate, Dr. R. J. Callender was nominated and elected.

Dr. N. D. Brayton, asking for special privilege, stated that at this time there lies at his home in El Paso, probably in his last illness, a man who has been the honored guest of this Association and at present the president of the Medical & Surgical Association of the Southwest. He made motion that this Association send a message of regret and God speed for his recovery to Dr. Hugh Crouse of El Paso. Motion was carried.

Dr. Stroud asked concerning Dr. Leonard Wood of Miami, whether his death occurred during the past year, and was instructed to include it in his report, if this were true. (Note: Dr. Wood died during the session at Yuma last year and was in-

cluded in the Report on Necrology for that session.)

Dr. Wilkinson recalled that Dr. Wylie once spoke to this Association on the matter of legislation looking to making it easier to secure conviction for abortions, by removing the clause which makes the woman equally responsible with the doctor. He moved a re-endorsement of the Association of this suggestion and its reference to the proper committee. Motion was seconded by Dr. Flinn and carried.

Nominations for the office of president-elect being called for, Dr. W. V. Whitmore nominated Dr. Samuel H. Watson, of Tucson, in the following characteristic manner:

Those of you, who have been attending these sessions for the past thirty years, will recall that I have tried to vary the monotony of this phase of the program. Some years I have taken considerable time in dilating upon the qualifications of my candidate; upon other occasions I have said nothing—more or less effectively. In a hasty review of the last three decades, I have wondered whether anything I have said, or not said, had really any influence upon the subsequent administration. I cannot believe that it has. It seems to me that in the future—if there be any future—trouble might be saved for everybody by putting this thing in tabloid form, something like this: Dr. Flinn chooses Dr. Smith, Jones or Brown as the president-elect and asks for my moral support."

The recent change in our constitution, providing for a president-elect—with a year during which he may familiarize himself with the duties of the higher office,—somewhat modifies the basis of requirements. I have almost concluded that it does not matter very much who the president-elect is, provided we have a high-class man as president. For example, Dr. Vivian, as president-elect, could not have had a finer man under whom to learn the ropes, than Dr. Bridge. In the case of the development of Dr. Carlson, I am uncertain whether that is due to the influence of Dr. Vivian or to Dr. Carlson's association with his program committee.

During the twenty-eight years that I have actually officiated in this capacity, I have nominated only four men from Pima County. My recollection is that I personally had some choice in the case of the first two. The third I was definitely instructed by the Society to nominate, while the fourth was the choice of the Society—informally secured. Certainly four men in twenty-eight years do not indicate a disposition of hoggrishness on the part of Pima County—notwithstanding my prominent position.

I will say just one thing about my candidate on this occasion. At times during the past years I have been called on by different insurance companies to report on the degree of disability of tuberculous patients residing here. I like to have my reports somewhat in keeping with the views of the medical attendant; so, in early days, I used to ask two questions. First, who is your medical attendant? Second, what does he say about your condition and progress? I have learned in recent years, that I need to ask only one question, and that is, what does Dr. Watson say about your condition and progress?

I nominate Samuel H. Watson of Pima County for the office of president-elect.

Dr. Sweek moved that nominations close and the secretary of the Association cast the unanimous vote of the delegates for Dr. Watson. Seconded by Dr. Kennedy and carried.

Dr. Watson was declared elected president-elect.

Nominations for Vice-President being called for,

Dr. Stroud nominated Dr. H. T. Bailey of Phoenix.

Dr. Flinn nominated Dr. D. F. Harbridge of Phoenix.

Ballotting resulted in 14 votes for Dr. Bailey and 11 for Dr. Harbridge, and Dr. Bailey was declared elected vice-president.

Nominations for secretary being called for, Dr. Todt nominated Dr. D. F. Harbridge to succeed himself. Motion was made that nominations close and the unanimous ballot of the Association be cast for Dr. Harbridge. Seconded and carried and Dr. Harbridge was declared elected secretary.

Nominations for treasurer being called, Dr. C. E. Yount was nominated. Motion was made, seconded and carried that nominations close and the unanimous ballot be cast for Dr. Yount. He was declared elected.

As councilor for the northern district, Dr. W. C. Todt was nominated. Motion was made, seconded and carried that the unanimous ballot be cast for Dr. Todt. He was declared elected.

As member on the Committee on Medical Defense to succeed Dr. F. T. Wright, Dr. Flinn nominated Dr. R. D. Kennedy of Globe. It developed in the discussion that Dr. Wright has retired from practice and probably will be out of the state a great deal; also that it is necessary to have active members on this committee. Dr. Kennedy was elected. The secretary was directed, by vote, to send a letter of appreciation to Dr. Wright for his very valuable services on this committee.

Dr. Todt nominated Dr. D. F. Harbridge, secretary, as the other member of this committee. On motion, he was elected unanimously.

With regard to the place of the next meeting, Dr. Flinn extended the invitation of the Yavapai County Society for the Association to meet at Prescott. Motion was made that this invitation be accepted; carried.

As Committee on Public Welfare, Dr. Carlson, president, appointed Dr. Clarence Gunter of Globe chairman; Dr. W. Warner Watkins of Phoenix (two years); Dr. John W. Flinn of Prescott (one year). Motion was made that the House of Delegates approve the appointment of these members; carried.

As Committee on National Legislation, Dr. Flinn nominated Dr. R. J. Stroud; upon proper motion, he was unanimously elected.

In closing the session, Dr. Carlson stated that he would like to have the secretary spread on the minutes, and transmit to the Pima County Medical Society, our heartfelt appreciation of the excellent and delightful entertainment we have had. Dr. Yount said he would like to have the honor of seconding that motion. A rising vote was taken.

Adjournment sine die of the House of Delegates.

MINUTES OF THE GENERAL SCIENTIFIC SESSIONS

The first general session opened in the Santa Rita Hotel, at ten o'clock, Thursday morning, April 19, Dr. Chas. S. Vivian, presiding.

The invocation was pronounced by Rev. E. W. Syricker of Tucson.

The address of welcome was given by Hon. Frank J. Cordes, mayor of Tucson, in substance as follows:

"It gives me great pleasure to greet you gentlemen, on behalf of the city of Tucson, as you gather to study the things that make for good health and sanitation. A city cannot be great without good health, and we look to such organizations as this to solve many of the problems which perplex the administrations of cities. Anything that the administration of this city can do

in cooperation with the Association to advance the things that you work for, we stand ready to do. In this, the "Sunshine City of the Southwest," where thousands of people are seeking health and happiness, our health problem means much to us; we have many problems which other cities do not encounter, and we hope from your meetings here, Tucson may be made a better place to live in."

Dr. Vivian responded briefly to this welcome and then introduced Dr. A. C. Carlson, president-elect, who assumed the office of president, and presided over the remainder of the sessions of this convention.

The first paper on the program was by Dr. F. G. Schaible, director of the Tucson Clinical Laboratory, of Tucson, the title being "The Value of the Laboratory to the Clinician." This paper will be found elsewhere in this issue of SOUTHWESTERN MEDICINE. The paper detailed the various laboratory tests, their value and shortcomings. It was discussed by Dr. W. W. Watkins of Phoenix, who called attention to the proper relation between the pathologist and the clinician, as consultants.

A joint paper by Drs. John J. McLoone and Harlan P. Mills, of Phoenix, on "Endothelioma of Waldeyer's Ring with Case Report," was read by Dr. McLoone. Discussion was opened by Dr. C. E. Ide, continued by Dr. M. C. Comer and closed by Dr. McLoone. Lantern slide illustrations of the tissue sections were shown.

The final paper of the morning session was by Drs. W. L. and C. P. Brown, of El Paso, read by Dr. W. L. Brown. The subject was "The Life, Growth and Reproduction of Bone in its Relation to the Healing of Fractures." A number of lantern slides illustrating the original experimental work of these workers and the application of the facts to fractures, were shown.

Dr. Carlson then read telegram from Dr. A. C. Scott of Temple, Texas, stating that on account of the serious illness of his wife, he was forced to cancel his engagement to give the oration on surgery for this Association. It was voted to send a telegram of regret and best wishes for Mrs. Scott's speedy recovery.

It was announced that through the efforts of Dr. C. A. Thomas, Dr. J. F. Percy of Los Angeles, had consented to come and deliver the oration on surgery in the afternoon session.

Adjournment for lunch.

The first item on the afternoon program (Thursday, April 19) was the address of the president, by Dr. A. C. Carlson of Jerome. This detailed some of the problems of the organization and practical means of attaining certain objectives.

This was followed by the Oration on Surgery, given by Dr. James F. Percy, of Los Angeles, head of the Department of Cancer of the Los Angeles General Hospital. Dr. Percy paid a high tribute to Dr. Scott, whose place on the program he was filling. He outlined some of the present day problems in the treatment of cancer. He stated that the proper treatment of cancer does not depend on the discovery of its cause; that we would be in no better position to treat cancer if we should discover its cause. He spoke of his special technic of operating on malignancies by the hot knife and cautery, and showed a moving picture of an operation upon the breast under no general anesthetic except a quarter grain of morphine and one-hundredth grain of scopolamine, and no local anesthetic. Many questions were asked, which were answered by Dr. Percy.

In the unavoidable absence of Dr. F. J. Milloy, whose wife was sick, the next paper called was by Dr. A. J. McIntyre on "Vincent's Infection of the Uterus—Report of Case." Discussion was opened

by Dr. D. F. Harbridge, continued by Dr. W. W. Watkins of Phoenix, Dr. Joel I. Butler, of Tucson, Dr. O. H. Brown of Phoenix, Dr. J. J. McLoone of Phoenix, Dr. W. O. Sweek of Phoenix, Dr. W. L. Brown of El Paso, with closing discussion by Dr. McIntyre.

The next paper was by Dr. W. O. Sweek of Phoenix, on "The Technic of Cholecystectomy." Discussion was opened by Dr. Victor M. Gore of Tucson, continued by Dr. C. A. Thomas of Tucson, Dr. H. D. Ketcherside of Yuma, Dr. W. L. Brown of El Paso, Dr. J. I. Butler of Tucson, with closing discussion by Dr. Sweek.

Dr. H. D. Ketcherside of Yuma presented an interesting paper on "Internal Abdominal Injuries without External Wound," citing several cases. Discussion on this was opened by Dr. H. T. Southworth of Prescott, continued by Dr. V. A. Smelker of Nogales, Dr. J. M. Greer of Phoenix, Dr. W. O. Sweek of Phoenix, with Dr. Ketcherside closing.

This finished the afternoon program and adjournment was taken to 9 o'clock Friday morning.

In the evening the Pima County Medical Society entertained the members and male guests at a smoker at the Women's Club, where refreshments were served and entertainment of the usual type given.

Session convened at nine o'clock Friday morning (April 20) in the auditorium of the Scottish Rite Temple, with a symposium on encephalitis and poliomyelitis.

The first paper was by Dr. Henry Dietrich of Los Angeles, the fraternal delegate from the California State Medical Association, who spoke on "Diagnosis and Treatment of Poliomyelitis."

The next paper was by Dr. John C. Wilson of Los Angeles, who spoke by invitation on "Orthopedic Aftercare in Anterior Poliomyelitis," illustrating the paper by a moving picture showing the gait in various group paralyses and the technic of massage and underwater movements.

The next paper was by Dr. G. H. Luckett of Santa Fe, N. M., director of the Bureau of Health of New Mexico and fraternal delegate from the New Mexico Medical Society. He spoke on "Public Health Measures in Poliomyelitis," based on their experience in the recent epidemic.

The next paper by Dr. M. C. Fronske, of Flagstaff, Ariz., was on "Epidemic Poliomyelitis with Case Reports," giving history of several fulminating cases encountered in a short period of time in Luckett, Fronske and Bannister.

The last paper of the symposium was by Dr. Kimball Bannister, of Phoenix, who spoke on "Epidemic Encephalitis" detailing how it so closely simulates poliomyelitis that frequently differential diagnosis can hardly be made.

Discussion was opened by Dr. R. J. Stroud of Tempe, continued by Dr. J. I. Butler of Tucson, and closing discussions by Drs. Dietrich, Wilson, Luckett, Fronske and Bannister.

Following the open meeting of the House of Delegates on Friday afternoon the general session convened at 2:30 p. m., with Dr. Carlson presiding.

The first paper called was by Dr. Hal Rice of Morenci, on "Fracture of the Femur with Case Report," with lantern slides showing fractured femur and method of handling.

The second paper was by Dr. J. M. Greer of Phoenix, on "Remarks on Fractures." Discussion on these two papers was opened by Dr. C. A. Thomas of Tucson, continued by Dr. R. D. Kennedy of Globe, Dr. W. L. Brown of El Paso, with closing discussions by Drs. Rice and Greer.

The next paper was by Dr. Orville H. Brown of Phoenix, on "Food Sensitization and Its Treatment." The men to open this discussion not being present, the chair announced that general discussion would not be called for.

The last paper of the afternoon was by Dr. Edward H. Skinner, of Kansas City, president of the American Roentgen Ray Society, who came by invitation and presented paper on "Radium Treatment in Cancer of the Cervix and Menopausal Bleeding." Discussion was opened by Dr. W. W. Watkins of Phoenix, continued by Dr. J. I. Butler of Tucson, Dr. W. L. Brown of El Paso, Dr. C. A. Donaldson of Chandler, and closed by Dr. Skinner.

The annual banquet and dance was held on Friday evening, April 20, at the Santa Rita Hotel. The special feature of this banquet was the presence by invitation of the three surviving charter members of the Association, Dr. H. A. Hughes of Phoenix, Dr. R. C. Dryden of Safford and Dr. I. B. Hamilton of Cananea, Mexico. Toasts were proposed to each of them to which they responded. All of the members of the Association who have reached the age of seventy years were invited, and many expressions of regret were read from such members at their inability to attend. Dr. W. I. Linn of Prescott was present and responded to a toast.

The general session re-convened on Saturday morning at nine o'clock, with Dr. Carlson in the chair. The symposium on tuberculosis occupied most of the forenoon.

The first paper was by Dr. John W. Flinn of Prescott, on "The Leucocytic Picture as an Aid in the Diagnosis, Prognosis and Treatment of Pulmonary Tuberculosis." This was an analysis of the blood picture in one thousand patients.

The second paper was by Dr. A. D. Loewy of Fort Whipple, Ariz., on "Overcoming the Tuberculosis Handicap."

The third paper was by Dr. J. J. Beatty, of the Veterans' Bureau at Tucson, on "The Healing of Pulmonary Tuberculosis with an Exhibition of Serial Roentgenograms Showing the Various Types of Healing."

The fourth paper was by Dr. Felix P. Miller of El Paso, president-elect of the Texas State Medical Association, and fraternal delegate from this Association, whose paper was on "Surgical Problems Pertaining to Surgery of the Lung and Chest Wall," freely illustrated by a number of lantern slides.

The discussion of this group of papers was opened by Dr. Samuel H. Watson of Tucson, continued by Dr. W. W. Watkins of Phoenix, Dr. J. J. Beatty of Tucson, Dr. C. A. Donaldson of Chandler, Dr. O. H. Brown of Phoenix, with closing discussions by Drs. Flinn, Loewy, Beatty and Miller.

The next paper was by Dr. D. F. Harbridge of Phoenix on "The Use of Lenses and Mountings," in which he illustrated the evils of improper frames and mountings for glasses, and the necessity of having scientific guidance in the selection of such.

The closing general session convened at 1:30 p. m., in the Scottish Rite auditorium.

The first paper was by Dr. Frank J. Milloy of Phoenix, on "Clinical Signs and Management of Chronic Cholecystitis."

The second paper was by Dr. W. Warner Watkins of Phoenix, on "The Roentgenologic Signs of Chronic Cholecystitis," with lantern slides showing findings with the Graham dye test.

These two papers were discussed together, with Dr. C. A. Thomas of Tucson opening, continued by Dr. W. L. Brown of El Paso, Dr. Felix P. Miller of Tucson, Dr. J. I. Butler of Tucson, with Dr. Milloy and Dr. Watkins closing.

Adjournment sine die.

RECOGNITION OF PIONEERS

(A Contribution)

In one of the conferences of the Committee on Program for the 1928 session (consisting of Drs. Carlson, Thomas, Watkins and Whitmore, it occurred to Dr. Whitmore that this session would be the thirtieth anniversary of the first meeting of the Association ever held in Tucson, and that some kind of a celebration in commemoration of the event would be in order. When the matter was mentioned in committee, it was suggested that some recognition to the charter members and other pioneers of the organization be arranged. This met with the hearty approval of the entire committee, although the members fully realized that this phase of the entertainment was quite outside their literal jurisdiction. But the "good of the cause" seemed to justify such usurpation of authority, and Drs. Whitmore and Watkins were commissioned to make preparation for the little memorial.

There is preserved in the archives of the Association an old record book, containing an undated page of signatures which purports to be a list of the charter members of the old Territorial Association. A copy of this page of signatures is reproduced herewith. From the minutes of the meetings of 1892 and 1893, it would appear that this list is undoubtedly the register of the delegates to the meeting of 1893, at which time the constitution was adopted. Of the men assisting the actual organization meeting in Phoenix, in 1892, and therefore entitled to recognition as bona fide charter members, there are only three now living; these three were among those present at the second meeting of 1893, the delegates to which signed the record page reproduced herewith; namely, Dr. H. A. Hughes of Phoenix, Dr. R. C. Dryden of Pima, Ariz., and Dr. I. B. Hamilton of Cananea, Mexico.

It was considered of the utmost importance that the attendance of these three charter members at our memorial meeting be assured. When communicated with, they all expressed hope of attending.

Of the men who joined the organization at the 1893 meeting, whose names appear on the accompanying facsimile of the registration page, there still survive, in addition to the three charter members named above, three other pioneers, namely, Dr. H. W. Fenner now of Carmel, Calif., Dr. A. C. Wright of Mokelumne Hill, Calif., and Dr. T. Shields Collins of Los Angeles. During the two succeeding years of organization, several additional members became affiliated, and three of these still survive, namely, Dr. W. S. Philp of Los Angeles, Dr. L.

C. Toney of El Paso and Dr. George M. Brockway of Phoenix. Invitations were issued to these six men to be the honored guests of the Association on this occasion. Most of them had been out of the state for many years and, as they had been ignored all this time, it was hardly expected they would be interested. However, they surprised the committee by their deep appreciation of the courtesy extended them, by their unexpected interest in the Association, and by the good wishes and blessings sent to all members—old and new.

When the responses began to indicate that fewer than one half of these nine members would be able to attend, we included in our invitation an additional group, namely, the practitioners in Arizona who have reached the age of seventy years or more, regardless of their time of residence in the state or of their prominence in the activities of the Association. Several in this group are distinguished for these, although they were to be honored for having reached the age of discretion.—of three score and ten years. This group included Drs. A. H. Noon of Nogales, Wm Wylie and John Wix Thomas of Phoenix, W. I. Linn of Prescott, E. S. Miller of Flagstaff, George P. Sampson of Winslow, J. B. Hill of Glendale and C. H. Sawyer of San Carlos.

To the delight of all, the three charter members were present on the banquet night, with one representative from the seventy year group (Dr. W. I. Linn of Prescott), and Dr. Whitmore had the great pleasure and signal honor of toasting them. In presenting Dr. H. A. Hughes, he said: "Dr. Hughes is one of the pioneers of Arizona, having moved to Phoenix in 1886, after twelve years of practice in Texas. He was especially prominent in the professional work in the Salt River Valley in early days. His name was a household word. He has the distinction of having had more to do with the organization and early development of this Association than any man now living. He was the second president of the Association. We are delighted to have him with us tonight."

In responding Dr. Hughes recounted a number of his experiences in practice in the early days of Phoenix, forty years ago. He told of performing the first major surgical operation in the Salt River Valley, when, after a critical survey of the interior of the house, he elected to take his chances with mother Ntuare and operated beneath a cottonwood tree in the yard. Surgery was usually of the emergency class and demanded much of resourcefulness and good judgment. The early period of organization was filled with its problems, but

Reproduction of delegates registration page for meeting of 1893, of the Arizona Territorial Medical Association.

W. Miller	Phoenix
L. D. Darnell	Phoenix
W. W. Ward	Phoenix
Nail M. Entyre	Phoenix
Annie E. Martin	Phoenix
W. W. Brock	Tempe
John Hall Green	Tucson
David Hook	Tempe
Henry A. Hughes	Phoenix
Horatio W. Finner	Tucson
Chas. H. Porter	Tucson
Chas. H. Jones	Tempe
John H. Collins	Globe
A. H. Hoffer	Solomonville
Austin C. Wright	Bisbee
Wm. J. Barry	Florence
Thos. H. Sabbe	Mesa
E. B. Hamilton	Tombstone
Wm. L. Greff	Tempe
Ed. Dwyer	Winklow
J. L. Walker	Phoenix
Frank L. Eastman	Bisbee
B. G. Fox	Globe
C. H. S. Jones	Benison
Fred. Arnold Sweet	Bisbee
B. A. Holcombe	Tombstone

the enduring nature of the foundations then laid is shown by the growth of the Association through the following years.

Dr. R. C. Dryden, of Pima, was presented by Dr. Whitmore, with the following testimonial: "In 1892, Dr. Dryden was practicing at Winslow, as the local surgeon of the Santa Fe Railroad. He was elected to the legislature that year and during his work in that body he became impressed with the necessity for legislation for our profession. He conferred with the doctors in Phoenix, with the result that the Maricopa County Medical Society was organized, and the Arizona Territorial Medical Association was the outgrowth of the local society. Dr. Dryden was an important factor in its organization, and we are fortunate in having him with us on this occasion."

Dr. Dryden, in responding, told how his position as a representative in the legislature brought him into the fight for laws regulating the practice of medicine. As spokesman for the profession in the law-making body, he had the honor of assisting greatly in framing and passing the first medical and public health laws in Arizona.

Dr. I. B. Hamilton, now of Cameron, Mexico, was introduced by Dr. Whitmore as follows: "To have had a part in the organization of this Association thirty-six years ago would seem honor enough for a young man like Dr. aHmilton. But this was not the beginning of his distinction. In the year 1888, he had been a charter member of the Los Angeles (California) County Medical Society. It was there and during that year that I first met him. In fact, he was our demonstrator of anatomy in the medical school. If I had attained any prominence in the profession, or anywhere else, I would be more than willing for Dr. Hamilton to have full credit, whether he deserves it or not, for it was through him that I came to Tucson thirty-six years ago this morning."

Dr. Hamilton made a very eloquent response, which is given in full at the end of this recital.

With regard to Dr. H. W. Fenner, president of the Association in 1901, Dr. Whitmore said: "The Pima County medical men, particularly, are greatly disappointed that Dr. Fenner is not able to attend. He practiced in Tucson for more than forty years, and was the dean of the profession here for thirty years. He is held in the highest esteem by all who know him. This Association has never had a whiter, squarer member than Dr. Fenner. He writes from Carmel, Calif.: "It is very difficult to decline anything that the Pima County Society or the Arizona Medical Association might ask

of me. I have had so many kindnesses and favors shown me by both organizations that I have the sincere desire to do anything I could to make the coming meeting a success—to say nothing of the pleasure that I should have in meeting my old friends. However, old physical disability steps in..... As occasion arises, I trust you will give my regards to all old friends and my regret at not being able to greet them personally."

With regard to Dr. A. C. Wright, now of Pasadena, Calif., Dr. Whitmore said, "he was the politician of our members. One year, residing in Benson, he represented Cochise County in the legislature. The next session, residing in Mammoth, he represented Pinal County. He writes as follows: "I regret very much that I will be unable to be with you at this time. Hoping that this meeting will be a most successful one and assuring the committee that I appreciate greatly this honor that is being shown to the few old-time members who are still living, I remain, etc."

Dr. T. Shields Collins, formerly a prominent physician of Globe, now located in Los Angeles, writes, in response to the invitation: "I have recently received your kind invitation to attend the meeting of the state society in Tucson this month, this honor accorded me as being one of the early medical pilgrims of the old Territorial Society. I am quite proud to cherish this invitation as an evidence of a period of my life to which I frequently in fancy roam. Were I not quite crippled, almost bed-ridden, I should have been quite eager to have joined you in this celebration. Wishing the society the greatest success and a fruitful meeting, and to all of you the very best good luck. If, by chance, a few of the earlier boys are there, extend my love and fraternal blessings."

Dr. W. S. Philp, formerly located in Phoenix, who joined the Association in 1894, writes from Los Angeles:—"I am very sorry that I will not be able to meet with you on the 20th inst. Convey to Dr. Hughes my kindest regards."

Dr. George M. Brockway, of Phoenix, was located in Florence in 1895 when he became affiliated with the organization. Dr. Whitmore said, regarding him: "I have known Dr. Brockway since my first meeting in 1897. He was elected first vice-president of the Association at that session. He writes: "I had hoped that I would be able to accept your kind invitation. It now appears improbable that I can get away at that time. I want to express my keen regret at not being able to be present on an occasion so kindly and thoughtful.

ly planned by the committee. For auld lang syne I hope a goodly number of the old fellows will be about the cheerful board. It is too bad that dear Dr. Fenner cannot be there. God speed you all, young and old!"

Of the "seventy years old or more" group, only one was present. Dr. W. I. Linn, of Prescott, a faithful member of the Yavapai County Society for more than twenty years, and still in active practice, deserves great credit for journeying such a distance. He responded briefly to the toast for this group.

Dr. A. H. Noon, of Nogales, born in 1838, is the pioneer physician of southern Arizona, serving for many years as the secretary of the Santa Cruz Society. Although ninety years of age, the doctor had hopes of being present, but on the afternoon of the day of the banquet, he sent a special delivery letter stating that he hardly felt equal to the trip. It caused deep regret to the members present that they could not greet this venerable and worthy representative of our profession. Dr. Noon writes, "I very much regret not being able to be with you tonight. It seems to me prudent to keep fairly quiet just now and to meet with my old medical friends in salutation at the first opportunity that may offer again, in the meantime transmitting my sincere wishes to each and all of the medical circle to which we all belong, and in many cases for so long a period."

Dr. Whitmore said, regarding Dr. Win Wylie, of Phoenix, (born 1855): "Dr. Wylie joined this Association the same day I did. He was my successor as president twenty-nine years ago (1899.) Had he been present tonight he would have been the second man in Arizona to attend the first and the last session held in Tucson. About a year ago, Dr. Wylie's associates in the medical and legal professions gave him a testimonial dinner in commemoration of the completion of half a century in active and able service in medicine. Dr. Wylie writes: "I thank you very much for your kind invitation. It will give me great pleasure to be with you on April 20th, unless unavoidably prevented."

Dr. E. S. Miller, of Flagstaff, (born 1858), located there about thirty years ago. He has acted as the secretary of the Coconino Society since its organization.

Dr. George P. Sampson, of Winslow, (born 1855), a pioneer of northern Arizona, died before the time of the annual meeting. He held the distinction of being the most prompt county society secretary in the state in remitting dues. He had, until a short time before his death, served as the

secretary of the Navajo-Apache County Society since its organization.

Dr. J. B. Hill, of Glendale, Ariz., born in 1856, has been in Arizona since 1907. He was a faithful member of the Maricopa County Society for many years, although not in active practice.

Dr. C. H. Sawyer, of San Carlos, born in 1857, has been in the Indian Service at the San Carlos Agency for many years.

Dr. John Wix Thomas of Phoenix, was born in 1857. He located in Phoenix in 1899, where he has been in active practice since; he was for four years secretary of the State Board of Medical Examiners. He was president of the Maricopa County Society in 1907, and has the unique distinction of having had a son and a son-in-law each of whom has been president of this Association. (Dr. Roy E. Thomas in 1914-15, and Dr. W. W. Watkins in 1918-19).

The beautiful spirit manifested by these earlier members of the Association, whether able to attend or not, the new or renewed acquaintance with these men, the pleasure expressed by the present membership over the presence of these pioneers, the kindly comments upon the attempt by some of our distinguished visitors from outside the state, and the words of appreciation from the charter members themselves, all this has made the work of the committee a delight.

May God's richest blessing attend our pioneers! May their last days be their best!

W. V. WHITMORE.

RESPONSE TO TOAST

By I. B. HAMILTON, A.M., M.D., Cananea.

I have now given you an excellent demonstration of the prandial operation of an old-fashioned doctor, and will proceed to give you an imitation of an after-dinner speech by an old-time physician.

Your committee's representative informed me that I would not be expected to make a long speech—"just a few words" to show my appreciation, as one of the Old Nuts who were being honored on this auspicious and most enjoyable occasion, of the kindly feelings thus expressed for the Fathers of the Arizona Medical Society. He did not say "Old Nuts", but I have a hunch that he wanted to put it that way, but old age is reminiscent and verbose, and, having kept quiet for thirty-six years I am now going to break loose, and you youngsters will have to stand it, or sit it out, as best you may for the good speeches are yet to come and you must not miss them. It will probably be two-score years until you hear from me again.

To begin with, I shall have to go back to Homer, who even antedates Whitmore as a raconteur.

In April, 1892, a call came from the Phoenicians for the assembling of the Greeks at the Capitol for the purpose of organizing their army to fight for Medical Progress. Agamemnon, the commander-in-chief, was found in the person of Dr. Joshua Miller, of revered memory. Nestor was there as Dr. Hughes. I did not notice his sixty fully manned triremes anchored at the municipal docks in the

spacious harbor of Phoenix, but I do know that his wisdom and counsels were of great value to us modern Greeks, just as were the wisdom and counsels of the original Nestor to the invading host of Greeks before the walls of ancient Troy. Dr. Dryden, the strategist, even in those latter years of last century accustomed to "putting things over," impersonated Ulysses. Many impersonated Achilles, and stayed in their tents, refraining from coming up to the war until convinced by the wisdom of Nestor and the rest. Among these, in the south, were the genial and loveable Sweet, of Bisbee, and (nomen praeclarum et venerabile) Fenner of Tuscon, the latter, afterwards a tower of strength as a warrior on the side of the Greeks. I would like to think of Goodfellow as a Greek, but he "Hector'd" us so much that he must have been a Trojan. Had he been in our camp, I would call him Ajax. He defied everything, whereas Ajax only defied the lightning and the Trojans. After the scant dozen men in the Army had each been made a General, Colonel or Captain, i. e., President, Secretary, Treasurer, Censors and two Vice-Presidents, some one discovered the little shad-bellied wart from Tombstone, and instead of leaving him in peace to be the private, the Army created a Third Vice-President, but no fatal epidemic occurred, and that is all the distance it got. I never even became Second Vice-President.

When I got back among my rocks in Tombstone, Hector said to me "Well, I see you have been helping to organize a Territorial Medical Society. Going to pass a law to make it hard for us poor devils on the outside to make a living." Wonderful Goodfellow, a glutton for work in his younger days, insatiable in study of religions, true and false, of philosophies of mind, soul and matter, an individual in the end of the age of individualism—at the dawn of the age of specialism—*homo facile princeps inter aequalis*.

Well, a good medical law was passed, and it has helped progress. Whether the Arizona Medical has attained to, or surpassed, the dreams of those first Greeks, others are fitter to judge than I. No one ever said to me "Timeo Danaos et dona ferentes." We old fellows never gave the people wooden horses, and little wooden pill-boxes had almost vanished even in that day but some of us hear, every once in a while, of the chained lightning that we dispensed to some poor old prospector in a modern pasteboard pill-box.

Nestor, Ulysses, Homer and I all recall the processions and illuminations, the imitations of the Monitor; pill-boxes bring to mind the cheese box on the raft, paraded through the streets of many cities, towns and villages, after the defeat of the Merrimac. We sit here, paralyzed in our think-tanks, when we try to grasp the progress of material things—when we compare the pill-box on the raft with the assembled fleet of armored and turreted dread-naughts in Hawaiian waters. But the evolution of the Monitor into the dread-naught is not more startling than the evolution of the surgeon-barber who shaved the face, curled the hair and plastered the rapier-pricks of the nobleman of a couple of centuries past, and had a coin thrown to him—into the noble surgeon or physician of today, strong in his heritage of the knowledge of the ages. Each generation of the human race has had its thaumaturgists, but no age has produced so many wonder-worshippers as ours in all branches of knowledge and especially in the domains of medicine and surgery.

The age of inherited aristocracy draws to a close amidst the crashes of old civilizations and the clamors of different races arrogating each

to itself the predominance. The ruthless force of the aristocracy of predatory or inherited wealth, even though it is now powerful enough to attempt the emasculation of government, is tottering to its final fall. But there is an Aristocracy, beacon-lights of which have towered above the masses—or as Big Bill Thompson would put it, "them asses," during all the year of history. Now the thralls of ignorance, the shackles of superstition, are everywhere being broken, and with the United States in the van-guard and the medical profession among the growing forces in the front, the Aristocracy of Brains is at the wheel, and the throttle is wide open. **The Revolution is un fait accompli** and even were Don Napoleon Buonaparte to appear and throw in his "whiff of grape shot, it would produce no effect. The fount of knowledge once quaffed, the thirst for more knowledge only increases. *Scientia omnia vincit*. In the words of the great American-Hibernian warrior, *E Pluribus Erin-Unum Go Bragh*.

And now to draw this long clamour to a peaceful conclusion. *Senectus et amicitia*. Were ever finer words? Old age and friendship! Can anything be finer than to bounce into an old friend's work-room at intervals during two score years and always be received with a radiant smile and cordial handclasp? "God bless you, Old Boy. Glad to see you!"

Old? Poppycock. We people with brains cannot grow old. Ponder some of the things we have to do, and especially what we must think about. Having bounced the kings and captains, how many thousands of years will it take us to make democracy safe for the world? How can we make two pigs grow where only one pig grew before? How can we induce men and women of brains to interest themselves in civics rather than in money-grubbing? How can we best hang a lot of criminally rich grafters?

Coming to more abstract things, we must change our ideas as to cosmogony. The atom is now a microcosm. The pranks of electricity are innumerable and much thought is being expended to find out a little about it. Mendel is dead, but dominants and recessives are still produced, and the blood stream flows on, and men of genius continue. The crystalline rock at the bottom of the Grand Canyon is 700,000,000 years old; volcanoes are merely pustules of rock, molten by local faults and pressures; the earth probably is not cooling off; St. Peter may, however, have to revise his finishing touches to it, and do else than burn it with fervent heat and roll the firmament together as a scroll. The nebular hypothesis seems to have been knocked into a cocked hat, and Einstein has challenged Newton's theory of gravitation—but do not lose your gravity, Nestor, Ulysses and Homer, when I tell you that you, down in your valleys, among your watermelons, with your children and grandchildren around you, waiting for the dividends to be carved off in the shape of red crescents, and I, in my mountain-tops, star-gazing, cannot grow old! Besides the few things mentioned, are others innumerable, and, "pessimists as to conditions, but optimists as to possibilities," we can glimpse the eradication of disease, the rusting of the scalpel, and the apotheosis of the physician as the guardian of the public health, rather than the one who helps the people to bear their ills; and then, even though the grasshopper becomes a burden and the grinders cease, we can say with Tennyson,

"Sunset and evening star,

And one clear call for me.

And may there be no moaning at the bar,

When I put out to sea."

ARIZONA PERSONALS AND NEWS

DR. L. E. WALSH, city physician of Clarkdale, closed a busy season in health activities by the observation of May Day as Child Health Day in the schools of that town. There has been no epidemic of any sort in Clarkdale during the school year, the 600 school children having been vaccinated early in the spring.

DR. A. A. SHELLEY, of Phoenix, left on June first for St. Louis, where he will spend a month in special work in obstetrics at Washington University. He expects to resume his work in Phoenix July 2nd.

DR. L. E. WIGHTMAN, city health officer of Globe, announces that the danger of smallpox in that section has passed. During six weeks, there were fifteen cases with one death. About 1500 vaccinations were done in the city.

DR. R. D. KENNEDY, of Globe, delegate from the Arizona State Medical Association to the American Medical Association, left on June 5th for Minneapolis to attend the meeting of the national organization. Dr. Kennedy is on the program for a demonstration in the Exhibit on Fractures, a special feature of this year's meeting.

DR. ORVILLE H. BROWN, of Phoenix, left on June 6th for Minneapolis, where he will attend the American Medical Association and special societies meeting at the same time. He will read a paper on Etiology, Symptoms and Treatment of Food Sensitization before the Society on Study of Allergy. He will return the latter part of June.

The VETERANS BUREAU HOSPITAL, being built at Tucson, at a cost of \$1,000,000, is three-fourths completed, according to Dr. W. D. McFaul, medical director at Pastime Park. The hospital is located on a plot of 120 acres, which will be beautifully landscaped, there being an appropriation of \$10,000 a year for three years for this work. The hospital is located about seven miles distant from the present temporary hospital at Pastime Park.

DR. and MRS. J. J. P. ARMSTRONG, of Douglas, left on May 8th, for a trip around the world, with longest stay in Java. They sailed from the Pacific coast about the middle of May. On their return in September, Dr. Armstrong will attend the meeting of the American Electro-Therapeutic Association in Boston, and will resume his practice about October first.

DR. R. B. DURFEE, of Bisbee, has started the physical examinations of the 115 teachers in the public schools of the Bisbee district. A clean bill of health is demanded by the board of trustees before re-appointment.

DR. B. B. EDWARDS, formerly with the Veterans Bureau Hospital at Fort Bayard, N. M., has resigned from the government service and will enter into private practice with Dr. I. E. Huffman in Tucson.

The VETERANS BUREAU HOSPITAL at FORT WHIPPLE observed National Hospital Day on May 11th by keeping open house from 1 to 4:30 p. m. An elaborate program was presented under the direction of Dr. Gail Allee, medical officer in charge. This institution has won an enviable place among the governmental institutions, and is now rated as a Class "A" hospital by the American College of Surgeons.

ST. JOSEPH'S HOSPITAL, at Phoenix, held its graduation exercises for the 1928 class of nurses on May 15th. Several functions had preceded the actual exercises, in which the graduating students were entertained. The exercises proper began at seven thirty o'clock in the beautiful chapel of the hospital. The families and friends of the nurses were invited, and a brief, impressive service was held, with special music and an address by Father

Victor of the Franciscan order. Following this an informal lawn reception was held, with music and dancing in the parlor of the nurses' home.

DR. H. P. COLLINS, a physician temporarily located in Phoenix, after many years of practice in old Mexico, was arrested and taken to Portland, Ore., the middle of May, to answer charges of fraud in the sale of mining stock.

The occurrence of a CASE OF SMALL POX at the UNIVERSITY the latter part of May caused a general vaccination of the students of the school to be ordered by Dr. Fred Perkins, university medical advisor and Dr. Alvin Kirmse, city health officer of Tucson. The student who contracted smallpox had not been vaccinated and visited his home in Globe while the smallpox epidemic there was at its height. Twenty-one days later he developed smallpox.

DR. C. H. FITZGERALD, of the Calumet & Arizona Hospital staff, Bisbee, was elected president of the Rotary Club of that city, to take office on July first.

DR. C. A. DONALDSON, of Chandler, will move to Mesa in the fall. He will have associated with him in practice in Mesa, his son who is now practicing in Minnesota, having recently graduated in medicine.

DR. JAMES M. GREER, of Phoenix, made a hurried trip back to that city from the middle west, early in June, in connection with some important developments in the affairs of the Medical Arts Building corporation. He has been spending some weeks in St. Louis and Memphis in orthopedic clinics. He returned to postgraduate work after a few days in Phoenix, going to New York for the remainder of the year.

DR. FRED G. HOLMES, of Phoenix, writes from Vienna that he is seeing some very fine work and spending long hours in clinics. With the exception of two hours of recreation each morning, he is busy the remainder of each day in postgraduate study.

DR. JOHN WIX THOMAS, of Phoenix, will leave about July 3rd for vacation on the Pacific Coast. During his absence from the city his work will be taken care of by Dr. Shelley.

DR. W. WARNER WATKINS, of Phoenix, will leave the last week in June for a vacation of five weeks, partly at Oak Creek Canyon, and then in Southern California.

DR. E. PAYNE PALMER, of Phoenix, will return the first of July from a vacation trip into the White Mountains. The piscatorial population of the environs of Greer are stated to be decidedly decreased by his visit to that locality.

DR. FRANK J. MILLOY, of Phoenix, will leave the first of July for vacation and postgraduate work on the coast, partly in southern California and partly in San Francisco.

DR. J. M. MEASON, of Chandler, was in Dallas, Texas, during June, taking special work in Baylor University Medical School.

DR. GEORGE C. TRUMAN, formerly of Florence, Ariz., has moved to Mesa, where he will be associated in practice with Drs. Palmer and Greer.

THE DEACONESS HOSPITAL, of Phoenix, held its graduation exercises for a class of fifteen nurses on May 11th, at the First Presbyterian Church. Mr. K. S. Townsend, chairman of the Board of Trustees, introduced Mr. E. E. Montgomery, principal of the Phoenix Union High School, who presided. After a brief statement from Dr. L. H. Thayer, chairman of the medical staff, the principal address was given by H. Grady Cammage, president of the Northern Arizona Teachers' College at Flagstaff. Diplomas were presented by Mrs. J. A. Sexson, superintendent of the Hospital, to each of the graduates.

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RELATIVE TO DR. CROSSEN'S ARTICLES LAST MONTH

Through oversight, we failed to mention, in connection with Dr. Crossen's articles last month, that the beautiful cuts which accompanied these articles were loaned to us by the C. V. Mosby Company of St. Louis. Those cuts which illustrated the Clinic are new cuts made to illustrate the forthcoming new edition of Dr. Crossen's book on Diseases of Women. to be published by Mosby & Co. Through the very great courtesy of these publishers and Dr. Crossen, we were allowed to use these cuts, and we hereby express our deep appreciation.

The first plate (figures 1 and 2) appear reversed and upside down, to which fact several surgeons called our attention.

DOCTOR WHITMORE RECEIVES HONORARY DEGREE FROM UNIVERSITY OF ARIZONA

The University of Arizona, at its Commencement held on May 30th, conferred the honorary degree of Doctor of Laws upon Dr. W. V. Whitmore, of Tucson. So far as we know, this is the first time that a member of the medical profession in Arizona has received such a distinction. Dr. Whitmore was a member of the Board of Regents of the University from 1897 to 1899, was treasurer of the University from 1914 to 1917 and a chancellor in 1917 and 1918. He has been vitally interested in the institution for more than thirty years. For some years the University has been quite a family affair of the doctor's, he having been a regent, Mrs. Whitmore having been a former teacher

there, and their only son graduated from the institution five years ago.

The many friends of Dr. Whitmore in the profession will highly appreciate the conferring of this honor upon him and extend their congratulations.

NEW MEXICO MEDICAL SOCIETY

The complete details of the meeting of the New Mexico Medical Society held at Albuquerque, May 10, 11 and 12, were received too late for this issue, and will be published next month.

Dr. F. H. Crail of East Las Vegas was chosen president-elect, Dr. T. P. Martin of Taos taking office as president at this meeting. Dr. J. C. Kisner of Clayton was elected vice-president and Dr. L. B. Cohenour of Albuquerque, secretary-treasurer. Drs. Dwight Allison of Las Cruces and Carl Mulky of Albuquerque were chosen councilors for three years. Dr. H. A. Miller of Clovis was elected delegate to the American Medical Association with Dr. J. R. Van Atta of Albuquerque, alternate. Members of the Board of Managers of Southwestern Medicine are Drs. H. A. Ingalls, Roswell and P. G. Cornish, Jr., Albuquerque.

The NEW MEXICO PUBLIC HEALTH ASSOCIATION held their annual meeting at the Alvarado Hotel in Albuquerque during the two days preceding the convention of the Medical Society. Dr. C. W. Gerber of Las Cruces was president.

The NEW MEXICO TUBERCULOSIS ASSOCIATION held their annual meeting at the Alvarado Hotel, Albuquerque, on Saturday afternoon, May 12th, immediately following the closing of the New Mexico Medical Society convention.

ARIZONA PUBLIC HEALTH ASSOCIATION ORGANIZES

At the close of the Public Health and Sanitary Conference, held in Tucson on April 17 and 18, under the auspices of the State Board of Health, assisted by the State Dairy Commission and the Dairy Inspectors' Association, it was decided to organize the Arizona Public Health Association. The officers elected for the coming year are President, Dr. R. B. Durfee, Bisbee, Ariz., County Health Officer of Cochise County; Vice-President, George Grove, Tucson, City Engineer; Secretary-Treasurer, Jane H. Rider, Director, State Laboratory, Tucson, Ariz.

The president appointed Committee on Constitution and By-Laws, Dr. G. F. Manning of Flagstaff, M. R. Tillotson of Grand Canyon, and Dr. J. C. Hicks of Tucson.

As Committee on Program for the next meeting, the president appointed George Grove of Tucson, Dr. H. T. Southworth of Prescott and Mrs. Helene Thomas Bennett of Yuma. It is anticipated that the annual meetings of this Association will be held at the same place and just preceding the meeting of the Arizona State Medical Association.

The recent meeting in Tucson was divided into two sections; first, a Dairy Inspectors' School, and second, Water and Sewage Section. There was a registered attendance of eighty-five. Prominent sanitary engineers and dairy specialists took part in the program and discussions. Trips were arranged to dairies and pasteurizing plants, the new Tucson separate sludge digestion plant, and the Tucson garbage incinerator. Informal luncheons were held each day at the University Commons, the registrants at the Conference being the guests of President Byron F. Cummings on Tuesday. Among the outstanding speakers may be mentioned the following:

Paul S. Fox, Chief, Division of Sanitary Engineering and Sanitation for New Mexico, on "Results of a Market Milk Survey in New Mexico."

W. H. Haskell, Dairy Specialist, United States Public Health Service, on "The National Milk Program Today."

Dr. J. C. Anderson, State Health Officer, Austin, Texas, on "Public Health Work in Texas."

V. M. Ehlers, Chief Sanitary Engineer, Austin, Texas, on "Municipal Sanitation," with moving pictures of sewage treatment.

YUMA COUNTY MEDICAL SOCIETY

There was a called meeting of the Yuma County Medical Society, held at the Cochran Sanitarium Tuesday night, May 15th, at 8 p. m., Dr. H. A. Reese, President, in the chair. Drs. W. H. Lount,

C. A. Eaton and J. P. Smith, who have recently entered into practice in this county, being present, were invited to join and stated that they would submit their applications.

Dr. Reese gave an interesting talk on the scientific program as presented at the recent State Convention, stating that it was one of the finest meetings that he had ever attended. Dr. Ketcherside suggested that some plan of study be taken up and stated that some counties in the state had been using the Cabot Case records with success. It was decided to use the Cabot Case Records for the ensuing year. The members were divided into two teams, each team to present a case every alternate month, the winning team to be tendered a banquet at the end of the year. Dr. Reese was appointed to be the judge. Much enthusiasm was shown and the hope generally expressed for a more successful year.

W. C. CAIN, Sec'y.

EL PASO COUNTY MEDICAL SOCIETY

April 9, 1928

DR. HARRY VARNER reported cases of placenta previa from his service at the El Paso City-County Hospital. Thirteen were included in the series. All were Mexican women coming into the service potentially infected, as most had been either examined or packed under doubtful circumstances. Practically all the cases had a considerable amount of dilatation. Most of the cases, when carefully examined, showed a left lateral-posterior insertion of the placenta. Practically all of the cases were able to deliver without interference from below other than packing, rupture of the membranes, or the insertion of the hydrostatic bag into the amniotic cavity. Tight binders were applied from above and whenever feasible the fetal head was forced down into the pelvis to act as a tampon and a dilating wedge. Occasionally version and extraction or the Braxton-Hicks maneuver, was employed. One case died from broncho-pneumonia associated with the pelvic disease, probably a lymphatic extension. Practically all the cases ran a postpartum temperature. Pituitrin and ergot were always given after delivery, and ergot regularly for a week, to lessen involution.

Dr. Varner emphasized the treatment in these cases since conditions were distinctly unfavorable throughout the series. No private cases were reported, since cleau cases would be handled somewhat differently.

DR. HARRY LEIGH opened the discussion. He said he was glad these cases were reported because there was a current idea among some men that placenta previa usually means surgery. The excellent results reported in the face of unfavorable conditions clearly point to the safety and rationale of conservative handling whenever feasible. The fact that the cervix is often dilated for a long time prior to labor gives an excellent culture media for infection that should act as a deterring factor in the classical operation for delivery. Doubtless the rigid cervix occasionally encountered, with a central placental insertion, should best be treated with surgery of the Perro type. The frequency of pyelitis in placenta previa should always be kept in mind.

DR. J. A. RAWLINGS, in discussing Dr. Varner's paper, said that most men are agreed that cesarean section is indicated in central implantation of the placenta, for here the hemorrhage is inevitable and increases as dilatation proceeds. However, as a rule, section is not indicated even in central implantation, unless the child is viable. In most cases, viability or non-viability of the infant will make marked changes in treatment. Extreme

measures are rarely indicated unless the infant is viable.

Bill of Cleveland emphasizes the fact that loss of blood creates a vicious circle, in that, when a woman loses much blood, uterine inertia takes place, consequently contraction is slowed up and delivery impeded; besides, contractions after delivery are feeble, hence postpartum bleeding is increased. He recommends transfusion in all cases where the blood pressure is below 90 to 100 systolic and 60 diastolic, before doing a cesarean or attempting delivery.

In partial or marginal implantation of the placenta, bags or packing of the os and vagina, according to the amount of dilatation, will meet most of the indications. However, in these marginal or partial cases, one must be guided in treatment by the amount and rapidity of bleeding, degree of dilatation and period of gestation.

When one is sure that he is dealing with a placenta previa, and the case is not bad enough for immediate delivery, the patient should be placed at perfect rest in a hospital, with instructions for the physician to be called at once should bleeding recur.

When once at the bedside of a woman who is bleeding enough to require efforts at delivery, no matter by what method, medical attendance should be constant, for serious bleeding can come on too rapidly and the consequences become too dire for the attendant to risk leaving.

I can not agree with some authors, that one should make no vaginal examination in placenta previa. I do think that these should be cut to the minimum and made with only the most careful asepsis. I think, also, that such examinations should be postponed until one has the patient at a hospital and prepared as for delivery, with packings and bags at hand for immediate use if needed.

The much vaunted Braxton-Hicks method of delivery is not so easy as the books would lead us to believe. I prefer to use bags, increasing in size until dilatation is sufficient to introduce the whole hand and do an immediate version rather than two fingers as in the Braxton-Hicks procedure unless, as is sometimes the case, the head descends and by pressure stops the bleeding. No matter what method we use, these cases cause great anxiety to both patients and attendants and form one of our most serious obstetrical hazards.

DR. VARNER, in closing, remarked that he had not attempted to go into the whole subject of placenta previa. Urinary infection, he believes, is much more common in these cases than is usually suspected.

DR. E. K. ARMISTEAD presented a case of plastic surgery where an extensive damage was done to the flexor tendons of the wrist. Function was perfect. A second case of compound comminuted fracture of both lower bones of the leg was also shown, with pictures. Some bridging had resulted, but function was fairly well established. Continuous Dakin's solution had been used to clean up the wound.

(April 16)

CAPTAIN STAMMEL, of William Beaumont General Hospital, presented a clinical case of *ostitis fibrosa cystica*. The patient was a young man, of a rather short enlistment, who had begun to complain of pain in the hip. Roentgenological examination revealed marked areas of bone absorption with cysts, especially in the region of the neck and head of the humerus. X-ray pictures of the extremities showed the same condition in all bones except the ulna. Paget's disease was thus easily eliminated.

DR. P. R. CASELLAS presented the formal pa-

per of the evening on "X-ray Studies of Lung Abscess." While in general the paper in no way referred to the voluminous literature on the subject, its chief merit was that it dealt with cases coming directly under his own observation. A large number of slides illustrated the vagaries of pulmonary abscess and their differential diagnosis problems. Dr. Casellas is inclined still to regard the occasional lung abscess of aspiration as a clinical fact. This was illustrated with a case of a child who developed an abscess after falling into a cess-pool. A number of post-tonsillectomy cases were cited with plates. His arguments for gravitation and aspiration could hardly be considered tenable in the light of some of our present day information.

Dr. Casellas, in leaving the city, has not left his thesis for publication.

DR. R. HOMAN opened the discussion. He raised the point in prognosis where tuberculosis has been primarily the destructive agency at work. Abscess occasionally supervenes in these cases and, in his experience, the treatment has been attended with a great many difficulties. A case history of such a case was then given and some stereographic plates shown of the chest.

DR. EGBERT said: Dr. Casellas has this to support his belief that aspiration infection is the prime cause of lung abscess rather than the deposit of infected embolism: between 60 and 70 per cent of lung abscesses occur in the lower lobes and nearly 60 per cent of these occur in the right lower lobe. Gravity would tend to carry the aspiration into the lower lobes and, because the right descending bronchus goes off at a much more obtuse angle than the left, right side aspiration is more possible. As he stated in his paper, the weight of recent literature is against aspiration infection; it has been impossible to produce a lung abscess by insufflations of infected material into the small bronchi while, quite consistently, lung abscess can be produced experimentally by the injection of infected material into the blood stream. The foreign body abscess is, of course, an exception, but this condition is not a true parenchymal abscess. I should say that the prognosis in Dr. Homan's case should be good because it is, more than likely, an abscess of tuberculous origin and they are less virulent than non-tuberculous abscesses. The surgeons draw a time limit of two months for temporizing with so-called medical management, medical management erroneously including artificial pneumothorax, which is in truth a surgical procedure. Their position seems fairly well substantiated by statistics and yet the 20 to 25 per cent mortality from operation must not be lost sight of. All, including the surgeons, agree that medical management should be persevered in for at least the two months period before resorting to the more radical surgical drainage.

MAJOR HAIG cited the case of an occasional patient who has symptoms of abscess, but spontaneous rupture and drainage is both the diagnosis and the cure. He mentioned an example where an apical abscess had so drained, with cure, in an old tuberculous patient. However, an occasional remission had been noted, requiring bed rest. DR. STRONG advised postural drainage. Before this method had been advocated he had accidentally come across a case which was benefited in such a manner.

(April 23.)

DR. J. A. RAWLINGS presented case records from the Associated Charities, dealing with the care of the feeble-minded in our own community. The complicated system of excluding the advanced cases of feeble mindedness from epileptic colonies, or vice versa, in Texas, leaves those cases which

are both feeble-minded and epileptic without visible care except for the charity of the city. Some cases with vicious tendencies have been a serious menace to their families and no remedy seems available unless pressure is brought to bear for appropriations to hospitalize such patients.

Resolutions were passed and instructions given the state delegates to present the matter before the Texas House of Delegates at the State Medical Convention.

MRS. VAN WILSON, who represented the Student Loan Fund of the College Women's Club, spoke to the Medical Society on the advisability of the physicians establishing a scholarship. This was passed on resolution and an appropriation set aside for that purpose.

MAJOR DALEY, of William Beaumont General Hospital, presented a clinical case of an advanced hypertension and arterial sclerosis with aortic aneurysms. The patient, an ex-soldier of the Cuban and Philippine campaigns, denied venereal infection. He had had malaria and yellow fever during his service and tuberculosis since 1902. Age, 52; white and moderately well developed; occupation, farmer. He stated that his onset was five years ago. The chief complaints were dyspnea, pain in the chest and irritability. Effort has been attended with shortness of breath. A pain of unusual severity in the mid-chest, passing downward and to the back, occurs three to five times daily. The attacks force him to drop and breathe superficially for several minutes. Occasionally there has been some loss of consciousness. Some voice change has recently occurred.

The physical examination did not reveal a great deal except a difference in the pulsation of cervical vessels and the radial pulse. The heart tones at the base (left) were booming in character. X-ray studies revealed a massive dilatation in the arch and the upper descending aorta, with erosion of of the 6th and 7th dorsal vertebrae. The corresponding intervertebral discs showed a great deal of lipping. Similarly the ascending arch showed numerous small dilatations. Blood Wassermann was negative. Blood pressure: right, 160/72; left 160/82.

MAJOR HAIG presented an unusual case of cardiac irregularity. The patient was a young man of 37; white, with an antecedent history, rheumatism some twenty-five years ago and again in 1920. Complaints were weakness and a feeling of fluttering in the heart area. The general outline of the heart was a roundness at the left auricle and a general globoid shape. Tones were little affected. A tracing on entrance showed an auricular flutter with a block that made a ratio of 2:1 but sometimes varied to 3:1. Blood pressure was 110/90. On digitalis the flutter became a fibrillation with an increase from the original auricular rate of 220 to around 400. The digitalis was stopped and quinidine was started. A normal rhythm was at once established. Major Haig regards this as a rheumatic injury to the conduction apparatus.

DR. WERLEY said that he had found murmurs rather inconstant in mitral stenosis and difficult to use as a diagnostic aid.

DR. WAITE said that there is a tendency to forget the rest of the aorta once a diagnosis of aneurysm is made. He advocated intensive treatment and periodic x-ray checks. Pathological specimens studied had done a great deal to clear up our conception of the diseased process in vascular syphilis.

DR. W. R. JAMIESON'S paper, "Some Causes of Left-Sided Pain" brought out most of the usual, genito-urinary causes of pain. Pyelitis, hydronephrosis, abscess of the kidney, intra-renal hemorrhage,

tumors, stone and ureteral disease, bladder infections and calculi were dealt with and supplemented with case reports and roentgenograms. The occasional stricture of the intestines, which gives rise to pain similar to ureteral stone, was discussed. One case of gonococcal cystitis was especially pertinent.

DR. F. P. MILLER reported a case of hemorrhagic infarct of the left kidney, mistaken for stone. Relief was obtained by splitting the renal capsule.

DR. HARRY LEIGH reported a case of left-sided pain in a hemophilia following left-sided renal injury. He also mentioned splenic infarction and left-sided pneumonia with diaphragmatic pleurisy, as a very common cause of pain. Pain at the bladder-ureteral junctions is common after labor.

DR. E. J. CUMMINS mentioned twisted ovarian pedicles and left-sided appendicitis.

DR. FRANK C. GOODWIN called attention to the similarity of the pain of a Potts, or a dissecting psoas abscess, to a ureteral pain.

DR. WERLEY spoke of diverticulitis as a source of left-sided abdominal pain.

DR. JAMIESON said the numerous causes of left-sided pain could not be entirely covered in one paper but cases of his own observation were included.

DR. DUNCAN presented a resume of the present-day view on the athletic heart. Present day observations do not vouch for such an entity. He does not believe a perfectly normal heart can be injured by ordinary athletics. Postmortem studies in some cases seen here where death occurred during athletics, revealed a pre-existent disease.

DR. WERLEY opened the discussion: I think Dr. Duncan has given us a real paper on a subject concerning which there is much misconception. The term athlete is very vague. As generally used, it means one engaged in competitive sports or prize fighting. However, people engaged in heavy manual labor throw quite as much strain on their hearts and we hear nothing of them.

Exercise demands an increased circulation, which means an increased minute discharge of blood from the heart. In the untrained, it is accomplished by increased heart rate. In the trained, it is accomplished mostly by increased discharge per beat. This latter implies some dilatation of the ventricles during exercise but, since the heart is spherical and the volume of a sphere increases with the cube of its diameter, a very little dilatation greatly increases the ventricular capacity. We may grant, also, that exercise increases the thickness of the heart muscle, but such increase will amount to not more than one to three millimeters and such slight cardiac enlargements can not be detected by physical examination or even by x-ray.

The only large hearts that we have found at postmortem were invariably diseased hearts. In the trained athlete, x-ray examination after Marathon races has shown the heart to be small rather than large. It is only during exercise that it dilates.

I believe that the life insurance companies are changing their ideas as to athletes being short lived. John L. Sullivan lived beyond the average age and Jim Corbett is still very active.

Dr. Duncan has well brought out the point that physical endurance does not depend upon the heart alone. It demands good kidneys to carry off waste, good super-renal glands to mobilize sugar and increase oxidation, a good liver to destroy toxins, a good thyroid to increase metabolism, a good pancreas to burn sugar and a good brain to direct bodily actions.

Men have fallen exhausted or dead in competi-

tive sports, but investigation has always revealed the fact that they had fever or some kind of infection. Syphilis is a common finding. The so-called athletic heart is largely mythical and a product of superficial observations and wrong deductions.

DR. WAITE questioned the source of some injuries to the heart with the calcium deposits, if not infectious in origin.

(April 30, 1928)

The President read a letter from Major Scott, U. S. A., in which he enclosed copy of an address made by General Summerlin, Chief of Staff, U. S. A., before the graduating class of the Army Medical School. The address was read to the Society by the secretary, Dr. Turner.

MAJOR HAIG presented the following cases:

CASE 1.

C. C., male, white, age 26, former occupation cook and truck driver, admitted to hospital January 24, 1928, serving first enlistment.

Family history: Father and mother both living; three brothers and two sisters living and well. One sister dead at age of two, pneumonia. No history of tuberculosis, cancer or insanity. Mother has heart trouble.

Personal history: Has had measles, smallpox typhoid fever; not other sickness; no operations. Fracture of right wrist, 1914, no trouble since. History otherwise negative.

History of present illness: Entered hospital January 24, 1928, complaining of pain in lower right quadrant of abdomen. Was thrown from a horse about six weeks previously. Was rejected for enlistment in army in 1921, on account of heart trouble. Patient states that he had no trouble with heart until he was thrown from horse. Was enlisted at Fort Logan, Colorado, Nov. 9, 1927. Says he told the examining officer about being previously rejected. Has had occasional pain over heart for past two months, gets short of breath after moderate exercise. Had an attack of rheumatic fever in 1908, was in bed three months. No rheumatism since that time, has never had a sore throat.

Physical examination (on admission): Patient ambulant, febrile, complaining of shortness of breath, weakness on exertion, loss of weight, and pain in lower right quadrant of abdomen. Normal weight, 159; present weight, 140. General condition good, well developed and nourished. Special senses, negative. Skin and mucous membranes, clear. Glandular system, no adenopathy. Vascular system: Blood vessels easily compressed high pulse pressure, regular Corrigan type. No sclerosis. Blood pressure, 140/40. Heart: forceful beating and apical shock and thrill. Diastolic murmur, heard best in fourth left interspace and along diaphragm. Point of maximum impulse, fifth interspace. Lungs: expansion good and equal, no rales or dullness. Genito-urinary system: negative to external examination. Abdomen: Normal contour, no hernia. Liver and spleen: Not palpable. no masses, no tenderness. Nervous system, normal. Osseous system, negative; muscles and joints, negative.

Clinical course while in hospital: Patient admitted on account of weakness and shortness of breath and pain in lower right quadrant of abdomen. Pain in lower right quadrant of abdomen has disappeared and there is no demonstrable pathology in abdomen at present. There has been no change in other condition since admission. He has a valvular heart disease, aortic regurgitation, moderately well compensated, which is believed to be rheumatic in origin. There is no evidence serologically or physically of syphilis, and venereal history is negative. Patient had an attack of

acute rheumatic fever in 1909, no other attacks since that time. No joint involvement since then. tonsils were enlarged and infected. Tonsillectomy February 9, 1928. No other foci of infection found.

Diagnosis: (1) Valvular heart disease, aortic regurgitation, well compensated, probably rheumatic in origin. (2) Tonsillitis, chronic follicular bilateral; February 9, 1928, tonsillectomy bilateral, local anesthetic, novocain and cocaine.

Additional note: On April 10, 1928, while in hospital, patient had a return of joint symptoms, with slight swelling and considerable pain and discomfort in right knee-joint. About this time a typical herpes zoster eruption appeared on thighs and hip region. Patient was kept at bed rest with maximum doses of salicylate and in a week was comfortable. Two weeks after he was up and around as usual.

DISCUSSION

DR. WERLEY: This is a very interesting case. When we have aortic insufficiency we always think of syphilis, but I believe that is excluded by the history and also the x-ray. We must remember we can have a pure aortic insufficiency and no other cardiac lesion with rheumatism. It is somewhat rare but it does occur occasionally. We have difficulty in differentiating in a case like that because the Wassermann test does not always help us. It is not always positive even if there is syphilis. I think the anatomical shape of the heart in these lesions is of great help. If the aortic lesion was syphilitic, then you would find, in all probability a wide aorta. The aorta in this case is comparatively narrow. The question is whether this is produced by the aortic regurgitation, or whether it is a true organic rheumatic stenosis of the mitral valve. There are some things which will help us in making that diagnosis. The way the regurgitation stream runs there, would make it quite possible, because the sound is transmitted down towards the apex, which would indicate that regurgitation is off in that direction. For this reason I think it is a true mitral stenosis. If you have mitral stenosis, you are going to have a dilated and hypertrophied right auricle and probably a dilated and hypertrophied left auricle. In the third interspace on the left, the dullness extends pretty well over to the nipple line, indicating that it might be hypertrophied. If the left auricle is hypertrophied then the patient has a mitral stenosis, because the auricles are not going to hypertrophy without a true mitral stenosis.

MAJOR DALEY: In my opinion this man has a mitral disease. From the clinical point of view has valvular heart disease and that answers our purpose in disqualifying him from army service. The interesting point to me, however, was the attack he had on April 10th. After his diagnosis, he was awaiting discharge when he had an attack of herpes zoster. Now, the question is whether there is any relation between the herpes zoster and the joint involvement, and probably the heart involvement.

CASE 2

M.R.B., male, white, age 27, former occupation oil field operator, admitted to hospital November 24, 1927, while serving first enlistment.

Family and personal history: Father dead, typhoid; mother and one sister living and well. Had the usual diseases of childhood, tonsillitis several times in early youth; gonorrhea in 1926, denies other forms of venereal disease; drinks beer occasionally; smokes in moderation only.

History of present illness: Admitted to hospital November 24, 1917, with temperature 100.8, pulse 120, and complaint of sore throat and aching all

over body, the symptoms having come on early the morning of admission.

Physical examination: Well developed, fairly well nourished. Height, 71 inches; weight 149 pounds. Special senses: No disturbance; skin and mucosae normal. No adenopathy. Vascular system normal. Blood pressure, 115/75. Heart: Point of maximum impulse in 5th interspace 6 cm. to left of midsternal line; no murmurs; rate and rhythm normal. Lungs: no evidence of disease. Genitourinary system: no external evidence of disease. Abdomen and contained organs: no gross evidence of pathology. Nervous system: no gross abnormalities. Muscles, bones and joints: essentially normal. Examination of throat showed both tonsils moderately enlarged, reddened and exuding pus; no peritonsillar involvement. Anterior cervical glands palpable and somewhat tender.

Laboratory findings: X-ray of chest: no evidence of pulmonary pathology. Blood count normal. Urine, feces, blood Wassermann and Kahn, negative. Sputum negative for tubercle bacilli. Culture from tonsils day of admission showed staphylococcus.

Clinical course: The day following admission patient became afebrile with pulse rate not exceeding 80, and by the sixth day the acute symptoms had subsided. On December 1, 1927, tonsillectomy with local anesthesia was performed, the tonsils being found very large, deeply cryptic and definitely diseased. Convalescence from operation was uneventful. From December 3 to 31, 1927, the pulse rate ranged constantly from 104 to 124, and there was a coarse tremor of hands, moderate dyspnea on exertion and general bodily weakness. During the month of January, 1928, the heart rate ranged from 88 to 100 at rest and from then on to the present time same has been from 84 to 108. Basal metabolic rates estimated January 21, 1928, and February 6, 1928, were 16 and 10 per cent minus, respectively, with tests satisfactory. January 21, 1928, an inconstant apical systolic whiff was noted. Absolute bed rest for one month and sodium salicylate therapy caused no change in heart condition, nor in the tremor, dyspnea and other symptoms already described. Heart rate has not been affected by administration of Lugol's solution or digitalis. Focal infection, periapical abscess of tooth, remedied by extraction of tooth. No other foci of infection found. Electro-cardiograms, January 10 and April 8, 1928, show only simple tachycardia. X-ray examination of heart February 16, 1928, shows heart shadows to be not abnormal in size, shape or position. At present the heart rate is constantly over 100 at rest, 150 after exercise and 138 two minutes after exercise. The tremor, dyspnea and bodily weakness persist. A definite rough systolic murmur is heard in the fourth interspace next the sternum. Soldier gives history of gonorrhea in 1926 and states that at the time he had only a watery urethral discharge which lasted but a few days. On account of the possibility of this having been an intraurethral chancre instead of gonococcus infection, the role of latent lues in this case is considered and spinal fluid examination seems indicated. This was not done however as soldier refuses to submit to spinal puncture. Maximum improvement from hospitalization has been attained. Soldier is incapacitated for the performance of full military duty on account of limited cardiac reserve.

Diagnosis: 1. Tonsillitis, acute, follicular, bilateral. Operation—tonsillectomy, December 1, 1927.

2. Chronic valvular heart disease, mitral regurgitation with limited cardiac reserve.

The case of acute heart involvement which followed tonsillitis, but with tonsillectomy coming be-

tween the attack of tonsillitis, and the discovery of the heart involvement, being in close sequence, the fact that the heart involvement was not detected does not mean, to my mind, that it was not present. I feel in a certain number of cases we are either careless or sounds or signs are not grossly evident so we do not detect them. While infection may be present all the time, it may not have caused sufficient damage to cause a murmur.

Q. What was the pulse rate before the operation?

A. It had been around 80 prior to operation.

DISCUSSION

DR. WERLEY: I was unable to detect a regurgitant murmur. It may have been there a day or two ago and disappeared by this time. We expect in every case of rheumatism to find some involvement of the heart. It might not result in valvular disease but this fills up the heart muscle and you get a swollen heart during an acute stage of rheumatism very often. It might not be permanent but the heart is one place where rheumatism plants itself and stays.

MAJOR DALEY: This case, to my mind, is very interesting. There was first the attack of tonsillitis and then about six or eight days after the tonsillectomy was performed, he had an attack of tachycardia, which has existed ever since, unexplained. As to the matter of a murmur, some days you hear one and some days you do not. I have heard it very distinctly at times and then come back and did not hear it at all. After this man had his attack of tonsillitis, he had a normal pulse for several days, then the tonsillectomy was performed and he has never had a normal pulse since (it has been about three months now). This case is of interest in connection with the old teaching that one should not do a tonsillectomy for a month or two after recovery from an acute attack of the disease. There was no apparent necessity for delay in this case. I wanted to do a spinal fluid on him, but he would not permit it. We had several negative Wassermanns, so I tried to get the spinal fluid, but could not get his consent.

CASE REPORT BY CAPTAIN CASSERLY.

Male, age 36; former occupation, helper on truck, admitted to hospital April 13, 1928, with tentative diagnosis of duodenal ulcer. History: Usual diseases of childhood; left testicle removed in 1928 on account of being swollen and painful; never had venereal disease; had good health until about three months ago when he began to have indigestion and vomiting spells. He consulted the Veterans' Bureau doctor at Albuquerque and was given authority for admission to the hospital. Chief complaint, soreness on abdomen. He used to vomit two or three times a day, but had not vomited for two weeks prior to admission; used to belch gas most of the time; lost about 20 pounds in weight in the last three months; usual normal weight 130 pounds; weighs 110 pounds now, having lost 3 pounds during the last three weeks, in the hospital. He is a somewhat emaciated, anemic individual, muscles wasted and flabby.

General physical examination reveals nothing except enlarged lymph glands in the left groin. Lungs grossly negative; on physical examination no rales or alteration in sound conduction or production; no definite areas of impairment of resonance. Left testicle is missing, having been operated. Abdomen shows two very definite masses, which seem to be separated: one in the upper left quadrant, seemingly attached to the liver; the lower in the left lower quadrant. Prostate examination shows hard nodules on left side, which give patient considerable pain when palpated.

X-ray picture shows, in the left lung, several small circular areas. The right side shows a large lobular mass of density above the diaphragm. The rest of the lung contains small densities of the same description. This picture was taken four or five days after his admission to the hospital. Another x-ray, taken seven days afterward, shows the apparent spreading of this process in that the nodules are more conglomerated. Patient is rapidly losing weight and becoming more anemic. The findings by x-ray in the chest are interpreted as metastatic malignancy, perhaps carcinoma. Where the primary site of the malignancy is, is not known. It might have been in the testicle, or in the liver or prostate, though the prostate gland in itself is not injured or painful. Tentative diagnosis has been made of metastatic malignancy, probably both lungs involved, with primary focus of the disease so far not discovered.

CASE REPORT BY DR. HOMAN

Male, about 40 years of age; says he had never been sick in his life until last August when he was rowing a boat and had a heat stroke, got short of breath, broke out in perspiration all over, so he pulled the boat back to land and went to see a doctor. The doctor did not know what was the matter at first, but took Wassermann and result was two plus. Started to give him some treatment, but he got no better and has remained short of breath. When he came to our sanatorium he said he was ill and short of breath, and told me he had both lungs collapsed. We examined him and found on inspection well muscled man, who seems to be in good health. Percussion shows motion on both sides of chest impaired to a certain extent, but not total. Resonance very high right side and dullness at left base. Sounds are harsh at the hilus of each lung, some rales at both apices. The right lung is entirely obliterated. He is not running any temperature, ordinarily up and around all the time, talks well, does not seem to be short of breath except on exertion. This happened seven months ago. The only history of any disease was the Wassermann which was two plus after three or four examinations; spinal fluid negative. This attack came during violent exercise. The patient says he is a great boat rower and when he gets in a boat he wants to pull hard. Ordinarily when we have a genuine pneumothorax on one side we have a lot of shock, and the patient usually dies within 24 hours. This man has never had any history of tuberculosis. We figure he has about one-eighth of his lung area left.

We should like to have some discussion on this case and should like some of the chest men to suggest treatment. We have had a number of cases where collapse was almost complete on one side, in which we have drained off a certain amount of air to relieve pressure, but I question this in this case. This man is fairly comfortable, suffers little from dyspnea, and whether we would make matters worse by undertaking to aspirate some of the air, or not, is uncertain. I am inclined to leave it alone. We know, in giving artificial pneumothorax, we find the air has been absorbed. That should take place in a case of this kind unless the tear in the lung is permanent or large enough to be permanent and in that case aspirating the air would not accomplish anything. I should like very much to hear an expression from the chest men concerning that and any suggestions as to treatment in this particular case.

DR. LAWS: I have never treated a case of double spontaneous pneumothorax. I think it is a question of treating the patient, rather than the condition—that would be my idea. I would follow the same plan you are following. It would be

very interesting to watch this man under the fluoroscope and see what expansion of the lung he would get following cough and observe him at intervals to see how readily the lung might return, but if the man is comfortable I would leave him alone.

DR. EGBERT presented a paper entitled, "Two Fatal Cases of Lung Abscess Presenting Difficulties in Diagnosis and Treatment", illustrated by lantern slides and motion pictures, which had been prepared by him and DR. W. W. WAITE, and which is to be delivered at the meeting of the Texas State Medical Association at Galveston.

Discussion was participated in by DRS. HOMAN, VANDEVERE, LAWS, with DRS. EGBERT and WAITE closing.

DR. J. W. LAWS read his paper entitled "A Comparison of Physical and Roentgen Ray Findings in Pulmonary Tuberculosis," which is also to be delivered before the Texas State Medical Association at its meeting at Galveston. This was discussed by MAJOR HAIG, DRS. HOMAN and WERLEY.

DR. BRANCH reported that it had come to his attention that well-to-do people were receiving free attention and medicines at the clinics and made motion that a committee be appointed to confer with the City Council in order that the matter might be investigated and the abuse stopped. Considerable discussion ensued, but the motion was finally seconded and carried.

DR. RIGNEY presented a resolution adopted by the Crippled Children's Club, fostered by the Kiwanis, Rotary and Lions Clubs, requesting the Society to endorse legislation for State assistance to Crippled Children's Schools throughout the State.

Motion was made, seconded and passed that this action be taken.

The Secretary read a communication from Dr. Holman Taylor, Secretary of the Texas State Medical Association, relative to transportation certificates for members who desire to attend the Annual State Meeting at Galveston.

Adjournment at 10:45 p. m.

ST. JOSEPH'S HOSPITAL

(Phoenix)

(Staff Meeting of January 9, 1928.)

At this meeting, full report of which has not come to this journal, several interesting cases were reported:—

DR. FRANK MILLOY presented the following case of acute arthritis. Young man, 25 years old, entered hospital December 23, present complaint began three weeks ago, with fever and severe pain and swelling in both wrists and one ankle. Pain and swelling has continued until both hands are more than double their normal size, with involvement of all the joints, making patient completely helpless and unable to move any joint from wrists downward without severe pain. Unable to move the foot, although swelling is not so extensive.

Past history has no significance except for frequent attacks of tonsillitis during childhood and a Neisserian infection of several months ago.

Physical: Negative in every way except for the marked swelling and tenderness and redness of both wrists and one ankle joint. Temperature on admittance was 103, with count 11,400, polynuclears 85 per cent.

Treatment has consisted in baking the involved parts for one hour each day and administration of typhoid vaccine intravenously. This has been given at three to five day intervals, starting with 1/10 of 1 c.c. of a 1 to 10 dilution of triple typhoid vaccine. This dosage has been increased until the last dose given Saturday was 1/2 of 1 c.c. of the undiluted vaccine. Each injection was followed by very

severe chill and at first the temperature rose to 103, but the last injections have been causing the temperature to rise to about 100. There was relief of pain from the start. For the past two weeks patient has had practically no pain and there has been marked receding of the swelling. Has been afebrile since the reaction subsided after the first injection.

Dr. Milloy also reviewed briefly five cases of primary anemia treated in the hospital during the past sixteen months, as follows:—

These five cases presented are the primary anemia which have been in the hospital during the last sixteen months. Four of them are diagnosed pernicious anemia, one splenic.

The case of splenic anemia entered the hospital with hemoglobin of 50 and a red count of 2,960,000. According to the physical examination this patient has had a splenectomy. He received several blood transfusions and the last blood count shows a hemoglobin of 65 and red count, 3,690,000. This is a case of Dr. Schroeder and we know nothing of his subsequent history.

The second case entered the hospital Oct. 27, 1927, with hemoglobin of 12 and red count of 640,000. This case was transfused by Dr. Brown, who probably will be able to tell something about subsequent history.

The next two cases entered the hospital in September and November, 1926. One case gave history of over five years duration. During that time he has received over twenty blood transfusions. Just previous to entering hospital his red count was less than 1,000,000 and hemoglobin below 20. The other patient gave a history of four years duration, without diagnosis until just previous to entering hospital, blood count showed 35 per cent hemoglobin and 1,400,000 red cells. Both these patients have gastric achylia and severe colitis, and one has a very distressing neuritis. Both patients were placed on Murphy-Minot diet. One received three blood transfusions and the other four blood transfusions at weekly intervals. I have had occasion to examine both these patients within the last month and they have had normal blood counts and normal blood pictures, and are practically symptom free.

The fifth case is a man, 54 years of age. Entered the hospital in November, 1927, complaining of severe attack of diarrhea. He gives a history of several years duration of recurring spells of colitis with more or less diarrhea. Otherwise he considers himself in very good health. Examination shows well nourished man with rather pale skin, suggesting lemon tint. Apex of heart is in mammary line and mitral murmur is heard at the apex. There is some tenderness throughout the abdomen. This man has hemoglobin of 80 and red count of 3,730,000, which gives a color index of 1.3. His blood picture is quite suggestive. He also has gastric achylia. This looks like a case of early pernicious anemia. After following the liver diet for a month he reported his condition as considerably improved.

The result of these cases who have been following liver diet for year or more, is merely in accordance with the great number of such cases which have been reported in literature during recent months.

DR. O. H. BROWN:—Regarding the case to which Dr. Milloy referred as one which I transfused: This boy died about a month ago. While the case was diagnosed as pernicious anemia I am not altogether satisfied that the diagnosis is correct. As a small child he swallowed lye and has long had a stricture of the esophagus, to such an extent that he has been able to swallow only liquid foods. The transfusions each time produced splendid improve-

ment. But he had a definite psychosis and consequently was hard to handle. He gave Dr. John Wix Thomas, his physician, an endless amount of trouble. He really let himself die as he did not do the things necessary to hold the gain accomplished by the transfusions. Dr. McLoone knows something of the early history of the case as he operated on him, at one time.

Pernicious anemia affects three systems of the body, to-wit: the blood system, the nervous system and the digestive system. The probabilities are that the digestive system is usually affected first. Achlorhydria is an outstanding finding. This may precede actual development of anemia by many years, as high as from 12 to 14 years, according to cases on records. Along with the lack of acid are those general symptoms of indigestion, anorexia, gas, heart burn, sore tongue and mouth, diarrhea, lassitude and muscular weakness, edema and dyspnea.

The cord symptoms are the result of combined sclerosis in which the involvement is chiefly of the lateral and posterior columns. The involvement may predominate in one or the other and as a result the cord symptoms vary in different cases; the chief findings of cord involvement are numbness and tingling and the girdle sensation. But there may be signs of ataxia, more commonly of the arms, and sometimes crises not unlike those of tabes. The Babinski is sometimes positive as a result of cord changes; bed sores are common and must be carefully cared for.

The blood changes are those of severe anemia and may be found in any severe anemia. The outstanding blood finding is a high color index which is most characteristic of pernicious anemia; macrocytes, microcytes, erythroblasts and myelocytes, polychromatophilia, etc., are commonly found. If the reticulated cells, which are the immature cells, are found in excess of .7 per cent there exists a severe grade of anemia. The finding of large platelets is not uncommon. The coagulation time is usually delayed. The number of platelets is consistently reduced. The blood picture is made up of two phases, blood destruction and regeneration. Blood destruction is evidenced by bilirubin in the blood and possibly in the urine and feces. In the event that the blood regeneration takes place as rapidly as blood destruction there may be no evidence of anemia; consequently it is important to measure the grade of blood destruction.

In looking over the literature I find that a great deal is said about the treatment of pernicious anemia but little is said about early diagnosis. I did, however, come across several references which may be of interest.

Jorgenson and Warburg found that the normal erythrocyte has an average diameter of 7.7 microns; in pernicious anemia more than 15 per cent of the reds exceed 8.6 microns in diameter. They also find that the microcytes are thicker than the normal reds and the macrocytes are thinner.

Willeys and Giffin report a study of 1506 cases of pernicious anemia. The average age was 53.5 years. Fifty-six per cent were between 50 to 60 years. Males predominate two to one. They report that 46 of their cases had angina which closely simulated angina pectoris.

Jones and Joyce without stating the number of cases studied, state that they found chronic gall bladder disease in all of their cases.

Ridge suggests a new name for pernicious anemia, to-wit: uncompensation or exhausting hemolytic anemia.

Cameron and Foster found that the plasma chlorides in pernicious anemia are constantly low.

Fanconi reports seven unusual cases in children

which apparently had family tendency to pernicious anemia.

Izar reports one case who developed pernicious anemia along with amebic infection and cure came with the cure of the amebic infection.

The conclusions are that probably pernicious anemia has a hereditary factor which should be watched for and the early gastro-intestinal symptoms may long precede development of anemia.

Marsh Pitman, who made a study of anemia, states that administration of hydrochloric acid is of extreme importance. The present day theory of toxemia from the gastro intestinal tract as a primary cause of pernicious anemia supports the statement that atrophy of the mucous membrane may be of extreme importance in causing this disease, and achlorhydria may long precede anemia.

Cord changes may be found long before there are definite findings of anemia. Examination of the stomach and nervous system are essential for early diagnosis. Treatment with liver seems to be of value and warrants early diagnosis.

DR. DUDLEY FOURNIER presented a case of epidemic meningitis with the following comments:

Epidemic meningitis may be defined as a slightly contagious, infectious disease caused by the meningococcus. It is also known by a variety of names. Epidemic cerebrospinal meningitis is the most common. Epidemics usually make their appearance in the winter or spring and the great majority of cases develop in children and young adults.

The onset of the disease is usually abrupt and we seldom get a history of exposure. The attacks are frequently ushered in by a catarrhal infection or coryza, intense headache and chills, followed by fever and vomiting. The patient usually becomes rapidly unconscious. In the case I have in isolation in the hospital, the symptoms commenced abruptly two days previous to the time I first saw her. She is a child of eight years and her attack began with intense headache and photophobia, vomiting and retention of urine. Another doctor saw her and pronounced it bladder trouble and catheterized her. When I saw her, her head was drawn back, she was unconscious, and had a temperature of 103. Her neck was very stiff. Kernig and Brudzinski signs were present. The patellar reflex was slightly exaggerated. Respirations were irregular. The pupils were unequal. Lumbar puncture yielded a pussy fluid under increased pressure with cell count of 26,000. The body was covered by numerous hemorrhagic areas, the factor which has given the disease the name of spotted fever. The temperature curve in this case was very irregular, varying between 99 and 103. There are usually marked morning remissions and evening exacerbations. The pulse is usually increased in rate; severe headache is almost a constant symptom in patients old enough to indicate their feelings. The pain is usually very severe and is generally relieved after a lumbar puncture. Increase in muscle tone is a marked and characteristic symptom as is shown by stiffness of the neck. This sign is almost always present. Kernig's signs is another manifestation, as is also Brudzinski's neck and leg signs. It consists in flexion of the leg when the head is forced forward. The mental condition varies greatly; in mild cases the mentality may be normal; in severe cases, active delirium develops early. Vomiting almost always occurs early in the disease; it usually clears up on treatment. Retention of urine is an occasional symptom but was present in this case. It is usually of short duration but demands attention. Herpetic and hemorrhagic eruptions frequently occur; in this case it was of the hemorrhagic type and developed early in the disease.

Differential diagnosis: At the onset the symp-

toms of cerebrospinal meningitis and pneumonia may be very similar in sudden onset, chills and fever, headache, vomiting, delirium, and meningismus. Diagnosis early can only be made by lumbar puncture. By meningismus is meant the condition where, in the course of a disease, meningeal symptoms arise where the cerebrospinal fluid is increased in amount. The onset of influenza may simulate cerebrospinal meningitis with fever, headache, and pain in the back and legs, and stiffness of the neck. Lumbar puncture will make the diagnosis certain.

Tetanus differs in that there is rarely fever and constitutional symptoms. The rash is lacking. The history of an injury is of value in making the diagnosis of tetanus. Early differential diagnosis between cerebrospinal meningitis and poliomyelitis is difficult. In poliomyelitis the onset is usually abrupt, with fever. The temperature is usually higher at the onset and of shorter duration than in cerebrospinal meningitis. Delirium is rare in poliomyelitis. In poliomyelitis reflexes are unequal and in cerebrospinal meningitis, they are the same on both sides. Paralysis or paresis occurs in a large per cent of cases. The presence of a rash would indicate cerebrospinal meningitis. The diagnosis is usually determined by the spinal fluid as it is generally clear in poliomyelitis, while in cerebrospinal meningitis it is turbid and cells are greatly increased.

Treatment consists in giving the specific serum and frequent lumbar puncture. Fifteen to thirty c.c. of antimeningococcic serum are given intraspinally by the gravity method. This patient of mine had daily injections of 30 c.c. of serum intraspinally. She received 105 c.c. of antimeningococcic serum. The spinal fluid was allowed to run off until it dropped slowly from the needle and then the serum was allowed to enter by gravity. If the serum would not run it was given intravenously. Lumbar puncture was done every other day and the relief of pressure seemed to relieve the patient. The serum last removed was much clearer than that taken off at first. Diet was liquid in character and as the patient could not swallow, she had to be fed by gavage. She seemed to be improving nicely; consciousness returned and the stiffness disappeared; I thought she was going to get well but yesterday she developed signs of a myocarditis with pulse of 168 to 170 and died at 5:30 in the evening.

DR. F. C. JORDAN: Cerebro-spinal fever is the only bacillary meningitis that is amenable to treatment. All other types of meningitis have, practically, one hundred per cent mortality. In no other disease, except diphtheria, is it so necessary to make an early diagnosis and institute proper treatment. Cerebro-spinal fever is more prevalent in the United States than in any other country. Severe exercise and fatigue favor the incidence of the disease. This fact was demonstrated in the army camps where one-half to one and one-half per cent of the men were infected, while in similar groups of men in colleges outbreaks were very rare. Carriers are more numerous than actual cases of the disease and where there are no epidemics, there are very few carriers.

Symmers in 1918 noted that patients with status lymphaticus were prone to be attacked by a fatal form of cerebro-spinal fever. Sixty per cent of the necropsies revealed status lymphaticus, while in necropsies on other conditions, only eight per cent were infected.

A large percentage of the cases reported in infants occur during the first year of life. Convulsions are very common in the beginning of the disease. The fontanelles are practically always tense and bulging, and the suture may be widened. The

sense of sight is nearly always dulled, while the hearing is usually quite acute.

Kernig's sign is of little value in infants. Brudzinski's neck sign is nearly always present and is valuable.

The spinal fluid is pathognomic in cerebro-spinal fever and a spinal puncture should be done early.

Meningismus is quite common in children and may closely simulate cerebro-spinal fever. It is far better to make a useless spinal puncture in meningismus, than neglect a needed one in cerebro-spinal fever.

Serum should be given in larger amounts to children than to adults in proportion to their weight. Serum should be given daily intraspinally and sometimes intravenously until the headache and fever have disappeared and the fluid is clear. The withdrawal of spinal fluid for several days after the serum is discontinued, helps in many cases. Stiffness of the neck and back are among the later symptoms to disappear.

Cistern puncture, introduced by Ayer, may be come necessary if there is a block or obstruction in the spinal canal. The introduction of serum directly into the ventricles in babies with open fontalles may be a life-saving measure.

Fatal cases are usually of three types: first, those that die in the first few days of an overwhelming infection; second, those that are refractory to the serum given, the infection being of a strain not included in the serum given; third, those that die after a development of hydrocephalus. All other treatment consists in the maintenance of nutrition and body fluid and sedatives and rest for the nervous system.

ARIZONA DEACONESS HOSPITAL (Phoenix)

(March Staff Meeting)

The Medical and Surgical Staff of the Arizona Deaconess Hospital met Monday evening, March 26, at 8 p. m. at the hospital, with thirty-three in attendance. The minutes of the last council meeting were read. Dr. J. D. Hamer was elected to membership in the Staff. Dr. Hamer has been the resident physician at the hospital for the past year, and on March 1st became associated with Dr. Geo. Goodrich in private practice in Phoenix. He was presented, with a letter, on the order of the council, which expressed the appreciation of the staff for his splendid service.

DR. J. M. GREER, chairman of the records committee, reported on the deaths for the past month as follows:

Case 2438 was a male, 31 years of age, admitted to the hospital on Feb. 17, and died within twelve hours, with fracture of base of skull. There was no history recorded.

Case 2268, a male 69 years of age, entered the hospital Jan. 26 and died Feb. 3 with malignant tumor of left chest or lung. This case was discussed at the last staff meeting.

Case 2355, a female 22 years of age, admitted to the hospital Feb. 5 and died Feb. 7 of tuberculosis of lungs. Nothing of particular interest in this case.

Case 2324, admitted Feb. 2 and died on the 6th. This was a boy 11 years of age. Diagnosis of acute suppurative gangrenous appendicitis. He was taken sick about two weeks before entering the hospital, with pain in right epigastric region, some vomiting. After two days he felt much better; pain in abdomen remained but was not constant. The pain was relieved somewhat by enemas. Physician saw him four days previous to entrance in the hospital. At that time there was spasm in the muscles over McBurney's area, with tenderness over entire abdomen. The patient was not brought to the hos-

pital for four days. He was operated at once upon admission. The appendix was found to be gangrenous, ruptured, and entirely sloughed off. There was large amount of pus, not walled off. Leukocyte count was 20,500. The course was stormy and the patient died in four days. DR. GREER said he wondered if this case should not have been operated upon as soon as he was seen by the physician. He thought it was rather the custom of most surgeons to operate appendicitis as soon as the diagnosis is made.

Case 2341 entered the hospital on Feb. 4 and died on the 7th. Diagnosis of streptococcus septicemia. This case was reported at the last staff meeting.

Case 2445 was admitted to the hospital on Feb. 18 and died on the 27th, of apoplexy. Nothing of particular interest in this case. The history was not adequate.

Case 2456 was admitted to the hospital on Feb. 21 and died the same day. Diagnosis of acute gastro-enteritis. This was a baby fourteen months old, who had always been well. Well nourished, probably slightly overweight for his age. Skin clear. Appearance of child, one of good health. On February 20, baby appeared to be feeling well, was up at the table and had breakfast, did not notice anything wrong. That afternoon had some fever and was restless. About 7 p. m. the doctor was called and then he had one convulsion; was crying lustily when the doctor arrived, as though in pain. Crying suddenly ceased, child would rest for few minutes and then cry again. Was very nervous, with twitching of all parts of body and then another convulsion. Abdomen was distended with gas. Temperature was 104, axillary. Child was given large enema and large amount of feces and considerable amount of gas came away. The castor oil was vomited about thirty minutes after taken. Another one-half hour later the baby had another convulsion. Hot bath seemed to do very little, if any, good, but relaxation was obtained after prolonged hot bath. Nervousness still present and the convulsions seemed to come at regular intervals of an hour apart, regardless of anything that was done. At 10 p. m., when hot baths and enemas seemed to do no good for convulsions, child was given small dose of morphine and atropine. The effects of atropine were noticed but morphine seemed to have no effect on convulsions. Was given bromides and chloral by rectum but they had no effect on convulsion. Child was taken to the hospital. Enema was repeated with apparently no effect and child was steadily growing worse. Spinal puncture was made, fluid seemed under more than normal pressure but the fluid was clear, appearance was normal, cell count about normal. Abdomen continued distended until death only about thirty minutes after spinal puncture was made; before dying, baby had dark fluid coming from nose. Gas was expelled until shortly before death. The cell count of the fluid was 85.

DR. GREER said that he wondered if Dr. Shelley was satisfied with his diagnosis. DR. SHELLEY said that he was not satisfied with the diagnosis but that he had no other diagnosis to suggest. DR. GREER said that the number of cells in the spinal fluid might suggest some disease of the central nervous system.

Case 2420 was reported at the last staff meeting.

Case 2381 entered the hospital Feb. 8 and died on the 21st. Diagnosis of senility, hypostatic pneumonia, hypertension and chronic interstitial nephritis. Inadequate history and fair physical examination. Nothing of special interest in this case.

DR. GREER said the records compare favorably with records seen recently in other hospitals. In the teaching hospital the records are uniformly better than in our hospital. In some of the other

hospitals the records are but little, if any, better than ours. Our records contain a history of the illness in each case but this is usually not full enough. The physical examination is made and recorded but it is not full enough. Consultation records are conspicuous by their absence. Progress notes are being recorded better than previously.

Case 2366 was presented by DR. SCHWARTZ. This was a female thirty-seven years of age, an Indian. She was admitted to the hospital on Feb. 7 and discharged on March 15. The left ear was discharging pus and had had pain since the 3rd of January. Hearing in this ear had always been bad. The external canal was discharging pus and there was swelling behind the ear, where there was a fistulous tract discharging pus. Temperature, 101. X-ray examinations of the mastoids show normal cell development and bone detail on the right side. On the left side there is evidence of cell development but the cell outlines are lost and there is an increase in density with general haziness throughout the process. These findings are characteristic of bone destruction, with exudate into the cells. On Feb. 11 a simple mastoidectomy was done on the left side. The patient had a stormy course running a temperature from 100 to 104 all the time she remained in the hospital. A few days after the operation, she developed a soreness in left hip. The temperature slightly higher than before. Dr. Ellis saw her in consultation, he believed the infection was from head of left femur. Leukocyte count ran 10,600 to 18,600. Blood cultures were negative. The smears from the mastoid showed staphylococci. Spinal fluid showed no increase in pressure. The urine was negative except for a slight trace of albumin. The radiograph of hip joint showed no visible bone or joint changes. The patient left the hospital of her own demand. Dr. Goodrich saw her on Feb. 27 and made the following notation: "Woman appears very ill, pupils normal. Mental condition very sluggish. Pulse, 110; temperature, 102; skin feels very hot; tongue dry and red, slight amount of coating. Chest not examined. Abdomen very fat and tender to palpation on left side, particularly over left lower quadrant. Kidneys not palpable. Patient complains bitterly on palpation about the left hip joint. Able to flex leg slightly but further extension causes pain, slight abduction or extension of leg causes pain. Vaginal examination negative except that left side of pelvis feels boggy and very painful to palpation." He gave his opinion that there was infection and possible suppuration in left hip joint, possibly from the mastoid.

DR. DRANE said that he had been very much interested in this case, especially in regard to the process in the hip, but that he had nothing further to say about it.

DR. STROUD said he could give the history about the case as she had been in his care since leaving the hospital. She lives at the Salt River Agency, she is still very ill. The leg is extremely tender so that the clothing has to be held off her leg. Her temperature is high, respiration is frequent and the infection is probably a staphylococcal infection. He hopes to get her into the Indian Sanitarium in the near future.

Case 2506 was presented by DR. MCINTYRE as follows: A female, age 33 years, entered the hospital on February 25, with the following history: Strong, healthy woman up to about three weeks ago. About Feb. 5 this patient had a criminal abortion. The uterus had been packed on two different occasions until fetus was expelled. On Feb. 11, patient began having chills and running a high temperature. These chills came at about 12 hour intervals and lasted for about one hour. At this time temperature would go up to between 106 and 107.5 rectal. Patient became weaker each day;

what treatment had been given, I do not know. I was asked to take charge of the patient on February 28. Examination at this time showed patient extremely ill, with worried expression, very anemic. She was hard of hearing and was unable to talk without considerable exertion. Head and neck negative. No enlargement of thyroid. No cervical adenitis. Chest thin, equal expansion on both sides, I was unable to find evidence of pulmonary pathology. Heart normal in size and position. Very rapid in action, although heart beat is regular. Respiration, normal. Abdomen, flabby; no areas of tenderness on palpation. There is no vaginal discharge and no discharge from cervix. Uterus is slightly larger than normal but does not seem to be tender. Ovaries, normal. No tumors in pelvis. A tentative diagnosis of streptococcal septicemia was made.

On admission, temperature was 101, patient was perspiring profusely and was having a chill. Temperature during time in hospital ranged from 99 to 106.5, usually dropping twice in twenty-four hours. Blood Wassermann negative. Spinal fluid negative. Widal reactions were negative to typhoid and the para typhoids A and B. Malta fever agglutination test negative. Blood was negative for malaria. Urinalysis showed slight trace of albumin and many pus cells. Hemoglobin was 30 per cent; erythrocytes, 1,570,000; leukocytes, 7,600; polynuclears, 90 per cent; spinal fluid was clear; no increased pressure. Cell count seven. Smears were made and no bacteria found. Cultures were negative. Examination of stools was negative. Because of the low hemoglobin, on March 1st, patient was given 60 c.c. of blood by transfusion, with severe reaction; no more could be given. She was put on general expectant treatment and for a while appeared to get better although I was unable to make a definite diagnosis; but assumed there was some retained portion of the products of conception in the uterus. Considering the history given by patient, I was reluctant about tampering with the inside of uterus.

On March 7, patient developed a vaginal discharge. Vaginal smears were made, showing numerous spirochetes and fusiform bacilli, morphologically resembling Vincent's angina. Hemoglobin 25 per cent. Patient was transfused and 700 c.c. of blood given with no reaction, and patient felt better for two days. She was given three injections of neosalvarsan, intravenously; this was repeated in 24 hours. Patient began growing progressively worse, nearly pulseless, cyanotic, cold and clammy with all signs of impending death. Expired March 11.

Autopsy report: Uterus slightly enlarged, shows a mass attached over a large base protruding into the lumen. The cervical portion shows hemorrhagic extravasation and membranous exudate on the surface. Microscopic sections including both uterine wall and intra-uterine mass show embryonic structures having undergone marked inflammatory change and degeneration, evidently representing retained and degenerated placental tissue. Smears from uterus show spirochetes and fusiform bacilli morphologically resembling Vincent's angina. Culture shows organisms of staphylococci, streptococci and colon-like bacilli.

DR. DRANE asked what might have been the result had the uterus been curetted as soon as the doctor began treating the case. DR. MCINTYRE said that he did not know; it was his opinion that the better medical men advise against operation; he felt if he had performed the operation and the patient died that he would have been criticized. Since the woman has died he wondered if it might have been better if he had operated. DR. HARBIDGE said that he was particularly interested in this case. He reported a case in Cabot's series

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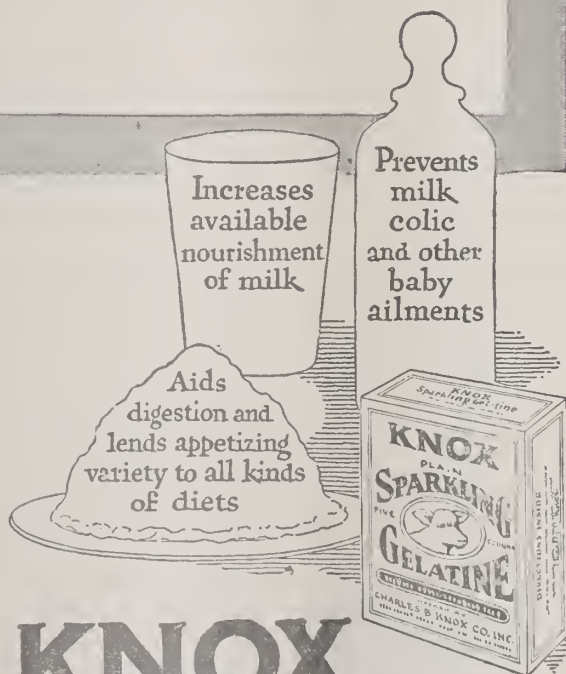
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of case reports in which a man had Vincent's angina infection with blood very similar to this case. Nine intravenous injections of neosalvarsan were given. The patient died and comment was made by Cabot that Vincent's angina is a serious infection and always deserves serious consideration. He wondered if neosalvarsan was the best treatment for it.

DR. GOODRICH asked what this patient died of, streptococcal infection or Vincent's angina. DR. GOODRICH said that he believed we should regard Vincent's angina infection as a serious condition; he had seen two cases in the past year and both of them died.

DR. BAILEY said that he agreed with Dr. Goodrich and wished to ask Dr. Mills one question—whether the findings of spirochetes in the mouth is sufficient on which to make the diagnosis of Vincent's angina. He wondered if the spirochetes and bacilli are not frequently found in the mouth.

DR. MILLS said that he knew of no way to tell whether spirochetes from any particular source were pathogenic or not. In this particular case the smears contained definite Vincent organisms. The exudate in the uterus was not connected with the retained placental tissue. DR. MCINTYRE, in answer to Dr. Greer, said that he did not know whether the woman died of streptococcal infection or Vincent's angina infection but was inclined to favor Vincent's angina infection. DR. LOE said that he had one case with an erosion about the rectum and many spirochetes were found. He gave her neosalvarsan and hot perborate packs and she seemed to be getting well.

DR. O. H. BROWN replied that he had a patient at the present time in whom ten teeth were extracted and the last one refused to clear up. A free purulent discharge remained after several days. Smears were made and Vincent's angina organisms were found. Neosalvarsan was given intravenously and glycerine suspensions of neosalvarsan were used to swab out the socket. After a day or two, perborate of soda, as mouth wash, was given. The patient seemed to gain more rapidly after the perborate was given.

DR. BURTCH asked if the spleen was involved.

DR. MCINTYRE said only the uterus was removed. DR. SCHWARTZ said that he had smears from the teeth in many cases and the finding of Vincent's angina is common.

DR. LOE said that he had similar experiences.

Case 2399 was presented by DR. GOODRICH as follows: Patient came to Arizona eight years ago, because of pulmonary tuberculosis. In 1923, she had lung collapsed, and in 1924, had rib resection. Has felt much better and been able to work for the past three years. In 1908, she had a severe case of tonsillitis with infection in both ears, which has left the hearing of the right ear somewhat impaired. There has been a swelling of the gland of the left side of the neck for a number of years, at first very slight and with no tenderness and no pain. She has been taking light treatments; thinks this has apparently reduced the size of the tumor. About a week previous to entrance to the hospital, she states, the swelling became soft and it was thought best to operate before it "broke open."

Other than for the chest condition given above, this patient states that she has always been well and strong. No serious illnesses. Appendix removed in 1923, under local anesthetic and small amount of gas. Appetite has been good, no digestive trouble. Renal history negative to frequency, discomfort, pain or hematuria. Menstruation regular, duration five days, no pain. Father living and well. Mother has some heart trouble. One sister died of heart trouble. One brother living and well. There is no history of tuberculosis in patient's family.

Physical examination—Patient is a fairly well nourished female, not acutely ill. Head covered with usual amount of hair. Ears are normal, right drum thick, with hearing impaired. Left drum is normal. No mastoid tenderness. Eyes: pupils regular, equal, and react well. Nose: turbinate, lower and middle on right side, hypertrophied, mucosae red. Mouth: drawn slightly to the right. Teeth show considerable silver and gold dental work. No caries. Gums normal. Throat clean, tonsils rough, nodular but deeply imbedded in fossae. No change of voice. Patient coughs frequently with small amount of sputum. Neck: at angle of mandible on left encroaching on parotid gland area, and extending up under lobe of ear, there is a tumor mass quite firm, encapsulated, sharply outlined and slightly movable. Mass appears superficial. Chest: right chest more rounded than left. Expansion lags and is less on left than on right. Percussion note resonant over lower right, slightly dull over right top, flat posteriorly over left top, assuming resonant quality at level of 6th vertebra. Right lung expands one and one-half finger breadths; left lung shows no expansion at the base. Breath sounds harsh at right top, vesicular at the base, and a few rales are heard at the apex posteriorly. Breath sounds over left top diminished in intensity, but slightly elevated over left base. Breath sound slightly elevated and a few rales are heard, there is a small cicatrix low in left axillary region. Heart: apex beat in 5th space nine cm. from center of sternum. There is a slight palpable impulse over right ventricle. Right border of heart is under sternum. Upper border of heart is at 4th rib. Sounds are of good quality, regular and distinct with a sharp termination to P2 which is accentuated. Pulse: rate, 70; regular, rhythmic, monacrotic. Blood pressure, 136/72. Abdomen: soft, flabby with old appendiceal cicatrix. Viscera not palpable. No masses or fluid. Breasts: pendulous, no masses. Extremities: no edema or other abnormalities. Neuromuscular: no gross sensory or motor disturbances. Reflexes, normal. Skin: no icterus eruptions nor pigmentations. Few palpable small nodes in right neck.

There are three classes of epithelial tumors which have been observed in the salivary glands, these are: (1) benign adenoma, (2) adenocarcinoma or carcinoma, (3) autochthonous mixed tumors.

In this latter class there are several varieties of tumors, named according to their histological structure: (1) myxochondro carcinoma, (2) basal cell carcinoma, (3) adenoid cystic epithelioma.

During the past thirty to forty years there has been considerable controversy as to whether these tumors were endothelial or epithelial in origin. Virchow, Cohnheim and C. Kaufmann all concede the epithelial nature of the tumors but hold they are of a transitional type.

The work of Krompecher, and others, seems to prove, beyond a doubt, their epithelial origin, yet Kaufmann still insists that some of them may be endothelial.

Epithelial mixed tumors of ordinary glands are comparatively common. They are seen at all ages from earliest life to old age. They occur, however, more frequently in middle life. Generally they are of slow growth, until disturbed. Tumors of this type have been observed to remain dormant for as long as three years. When disturbed by operation, recurrence frequently occurs in more malignant form. If these tumors are encapsulated they seldom recur.

It would seem from these observations, that the best method of attack for the care of such growths, would be by radium or x-ray. There is no way of determining before removal of a part or all of the tumor and a histological examination, whether they

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are encapsulated, benign or malignant growths or if they are intimately or remotely connected with an adjacent gland, or entirely separated from it. The elapsed time they remain dormant and the rapidity of their growth, do not seem to be determining factors.

The case under discussion was of peculiar interest to me at least, primarily because I missed the diagnosis. This patient has a history of a long and rather desperate struggle against pulmonary tuberculosis and some of its complications. It illustrates how easy it is sometimes to be deceived away from a broad consideration of the possibilities in diagnosis due to the history of a case.

DR. MILLS, in discussion of the case, said that he had but little to say about it except that this was a mixed tumor rising from the salivary structure. These tumors may involve any salivary structure. It is frequently difficult to tell whether they are malignant or not. Some of them are not malignant. The tumor may involve the whole of the gland or simply be adjacent to a gland, as with Dr. Goodrich's case.

Case 2405 was presented by DR. VIVIAN. A female, 47 years of age, entered the Hospital February 12, and was operated at once for acute appendicitis. She had been sick about a week with nausea and slight pain over the abdomen. Sometime before the operation, the pain localized definitely in the right lower quadrant where she was extremely tender. For the past five years she has been subject to pain and discomfort similar to this but not so severe. She has had severe constipation most of life. During the past year she lost strength. Her husband is tuberculous; there are three children, two of which have active tuberculosis. She admits three or four miscarriages. The operation was done under ethylene and local anesthesia. The cecum did not rotate and was dissected from the peritoneum. An abscess was found retrocecal and in the median line of the pelvis. The cutting of two adhesions caused the bowel to collapse; drains were inserted and the drainage has continued. After a time, this was examined and tubercle bacilli were found. Patient was examined by a consultant whose records are as follows:

No subjective symptoms of moment, referable to heart or lungs. Present acute illness (appendicitis) began about February 5. First seen by physician on 8th and nurse put on case. Pulse noted as irregular, rate 84, on the 8th. Again on 11th, rate 80. Noted as intermittent since 12th day of operation. Rate never high, 100 probably the maximum and usually nearer to 80. Examination of chest today: Impulse not felt well enough to be localized. Percussion outline shows left border apex in 5th space, mid-clavicular line. Outline not enlarged (in recumbent position). Sounds are strong but irregular. Pulse and heart rate 70 to 80, usually nearer 70. Irregularity consists in occasional dropping, sometimes frequent, of a regular beat at the wrist. Listening to the heart, there is usually at these times a dropping of the sound. There is the faint suggestion, of a very early premature beat. Occasionally definite premature beats are heard. I would think that this irregularity is probably due to premature beats, many of which are too early or too weak to be heard. The normal rhythm is not disturbed. No murmurs present. Blood pressure 112/60, left arm. Cardiac diagnosis: Toxic heart with multiple premature beats. Lungs: left, normal. Right shows diminished resonance in axilla and upward to 4th rib. Voice sounds increased although breath sounds are somewhat diminished. No rales made out but patient cannot be made to cough for purpose of examination. On very deep inspiratoins, however, did cause her to cough once. I would look out for pneumonic process at base of this right lung. Recommendations:

Increase normal elimination as being done at present. Mustard plasters to right lung every four hours about 1:4 for 15 to 20 minutes as tolerated.

The patient is still in the hospital and doing well under sunlight and open air treatment.

Case 2555, apoplexy and pneumonia, was reported by DR. COUCH.

THE PATHOLOGICAL CLUB OF EL PASO, TEXAS

(March 29, 1928)

The regular weekly meeting of the Pathological Club was held Thursday, March 29, 1928, at 8 p.m., in the clubroom, 311 Roberts-Banner Building, El Paso, Texas.

Dr. Willis W. Waite reported to the club that he had engaged Dr. Dunn to organize and systematize the collection of pathological postmortem specimens, which have grown to a considerable number, since more than 500 autopsies were performed by request in the past five years. It seemed apropos to the members that, before hoarding up more material, that on hand should be put in form and shape to be accessible and readily usable by the profession when study or demonstration of such material should be desired. In consequence of this reorganization and the creation of a new housing for the collection, meetings were not called during the past two weeks.

Dr. Waite asked Dr. Dunn to report on his work of systematizing the collection. Dr. Dunn felicitated the members for their progressive scientific spirit which led to collecting the valuable material found here, and which he considered a most promising nucleus for a pathological museum of greater merit. His ideas of systematizing such collections he explained briefly can be read in his paper which is elsewhere published.

The members expressed their appreciation with enthusiasm and gave Dr. Waite's endeavor the most gratifying support. It seemed as if the roots of the tree named "SCIENTIFIC CO-WORKMANSHIP," planted by Dr. Waite and a few of his friends, had spread sufficiently to attain a solid foothold.

The regular weekly program that followed consisted of the presentation of pathological material obtained in four postmortems. The cases discussed were:

Primary carcinoma of the liver with metastasis to the lungs and mediastinal glands, from an autopsy requested by Dr. Cummins.

A specimen of heart was shown displaying the features of septic thrombosis thromboarteritis and puerperal sepsis from a postmortem requested by Dr. Newman as staff-member of the county hospital.

From an autopsy requested by the County Hospital staff, specimen of bladder, ureters, kidneys, rectum and heart were presented with the diagnosis of pelvic abscess, acute septic nephritis and multiple thrombosis and thrombo-arteritis as immediate cause of death. Drs. Cummins and Newman furnished interesting historical data on the case.

Specimens obtained from the corpse of a 3-year-old child autopsied by request of the City Health Officer were also demonstrated: Lungs, intestines, peritoneum and liver; diagnosed as general pulmonary and abdominal tuberculosis.

All reports of postmortem examinations in the aforementioned cases were made by DR. WAITE and read on his request by Dr. Dunn. In the discussion nearly every member took part.

DR. PAUL GALLAGHER reported a fatal case of lobar pneumonia following chronic fibrous pleurisy, with empyema and collapsed right lung. Dr. Waite gave the details of postmortem findings in this case corroborating the antemortem diagnosis.

Before the meeting adjourned, the secretary of

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the club gave his financial statement. To cover the expenses caused by the reorganization of the pathological collection, Dr. Waite contributed \$100 and, on motion duly seconded, each member was assessed \$10 above the regular monthly dues.

As the main feature for the next meeting, Dr. Mason's treatise on "Sarcoma of the Bone" was announced and is awaited with eager interest.

BOOK REVIEWS

O. H. BROWN

CRAWFORD W. LONG—The Discoverer of Ether Anesthesia, by Francis Long Taylor; with a Foreword by Francis R. Packard, M.D.; with eight full-page plates; Paul B. Hoeber, Inc., New York; 1928.

As the name indicates, Mrs. Taylor is a daughter of the subject of the sketch. The manuscript was originally prepared just for the family; friends persuaded its publication.

The paternal grandparents of Dr. Long emigrated from Ireland to Pennsylvania. They were Scotch-Irish Presbyterians. The grandfather, with two brothers, fought in the American struggle for independence. In 1787, Samuel Long moved to Georgia with his family, one member of which was James, at that time a small boy, who became the father of Crawford Williamson Long. The family was not only frugal, accumulating a fortune, but they also appreciated the real things of life and stood for the better things in the community. The grandfather, Samuel, the father, James, and the son, Crawford, must all have been not only progressive but actually aggressive. Altruistic motives certainly governed in their lives to an unusual extent.

James founded and endowed an academy. He was an elder in the Presbyterian church. He owned and read many good books. He held a large number of slaves but regarded them as a sacred trust, and slavery as an institution, God-given, for the purpose of civilizing the African savages.

James married Elizabeth Ware, one of fourteen children, of English ancestry, of the same high-minded and endearing qualities as the Longs, and she became the mother of Crawford. She was evidently a bit less staid and sober in her views and habits of living, and contributed a vivaciousness which may have had no small part in the events which led to the great discovery.

Crawford Williamson Long was born November 15, 1915, in a two-story house on a hill overlooking the town of Danielsville, Georgia, which is today seven miles from a railroad and which was then 140 miles from a railroad. He was quiet and studious. He read the Bible at five, ever knew it intimately and lived by its precepts. He loved out-of-door sports of all sorts. He entered Franklin University at fourteen by special concession, and graduated in 1835, with the degree of A.M. He then taught school for a term and read medicine with Dr. Grant of Jefferson for the remainder of the year. The next year found him at Lexington, Kentucky, attending the medical department of Transylvania University. In 1838, he matriculated at the medical department of the University of Pennsylvania. The session was from November first to about the first of March.

In the early decades of the nineteenth century there were itinerant persons who went about this country and England giving lectures on chemistry. Nitrous oxide and ether were favorite subjects to lecture upon and the chemicals were often passed out to members of the audiences so that they might inhale the fumes and observe their exhilarating effects. Ether was more ready of use and hence, after a time, was more commonly used. Long, while in Philadelphia, together with other medical students attended one of these lectures, and later they acquired ether and locked them-

selves in a room and experienced ether "jags." About 1840, the wandering lecturers upon chemistry went south and introduced nitrous oxide and its merriment effects. In 1841, Crawford W. Long, having returned to Jefferson to practice, introduced ether as an exhilarant to the fun-loving contingent of the little town.

After graduation from the University of Pennsylvania in 1839, Long went to New York, spending eighteen months specializing in surgery and witnessing much suffering therefrom. Though qualified with the best that medical science offered, he returned to his home to practice and purchased the business of his preceptor, Dr. Grant. He soon became absorbed in professional duties. He maintained a medical library and kept himself posted upon the advances of the day. His age at the time of beginning practice was twenty-six.

A number of young men of refinement and culture made Long's office a rendezvous. It was these who importuned Long to allow them to experience the mirth-producing effects of nitrous oxide. He explained that he had no way of making or keeping nitrous oxide but that he had another and similar chemical which was just as good and equally safe. He had already had personal experience with ether and so had another of the young men who had been away to school.

Crawford W. Long knew the suffering produced by a surgical operation with no anesthetic and, of course, had visioned the day when pain would be controlled. So when, in the ether parties, those under the partial influence of the ether received quite considerable bruises with no complaint of pain and no recollection thereof, he naturally thought, trained scientist that he was, that here might be an answer to the pain of surgery.

Dr. Long's own narrative on this point reads as follows: "On numerous occasions I have inhaled ether for its exhilarating properties, and would frequently, at some short time subsequent to its inhalation, discover bruises or painful spots on my person, which I had received while under the influence of ether. I noticed my friends, while etherized, received falls and bangs, which I believed were sufficient to produce pain on a person not in a state of anesthesia, and on questioning them, they uniformly assured me that they did not feel the least pain from these accidents. These facts are mentioned that the reasons may be apparent why I was induced to make an experiment in etherization.

"The first patient to whom I administered ether in a surgical operation was Mr. James M. Venable, who then resided within two miles of Jefferson, and at present (1849) lives in Cobb County, Georgia. Mr. Venable consulted me on several occasions in regard to the propriety of removing two small tumors situated on the back of his neck, but would postpone, from time to time, having the operations performed, from dread of pain. At length, I mentioned to him the fact of my receiving bruises while under the influence of the vapour of ether, without suffering, and as I knew him to be fond of and accustomed to inhale ether, I suggested to him the probability that the operations might be performed without pain, and proposed operating on him while under its influence. He consented to have one tumor removed, and the operation was performed the same evening. The ether was given to Mr. Venable on a towel, and when fully under its influence, I extirpated the tumor. It was encysted and about one-half inch in diameter. The patient continued to inhale ether during the time of operation, and when informed it was over, seemed incredulous, until the tumor was shown him. He gave no evidence of suffering during the operation, and assured me after it was over that

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"Dr. Sutton is one of the most indefatigable of American dermatologists; a treatise on dermatology naturally comes as a sequence of his labors. He has been an independent investigator, but his work has been constructive and not iconoclastic. As would be expected, therefore, his treatise, while showing his independence of view, is along conservative lines, and is free from the unpardonable sin in a textbook of being controversial. This work is well done and it is highly recommended for study to the practitioner who would obtain a grasp of the subject of dermatology as a whole, as distinguished from a smattering knowledge of a few dermatoses."

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he did not experience the slightest degree of pain from its performance. This operation was performed on March 30, 1842."

When Dr. Long was asked if he had not been afraid to render a person unconscious, he replied: "No! I had seen my friends receive falls and blows and one man so badly lamed as to be unable to walk, yet all were unconscious of pain when the hurts were received, so that I knew it was from the effects of the ether inhaled. When giving it to Venable, with one hand I held the towel over his mouth and nose, permitting him to breathe a little air as he inhaled the drug; I kept my other hand upon his pulse. When he became insensible to the prick of a pin I operated. As an inducement to Venable to allow himself to be the subject of such experiment my charge for the operation was merely nominal, \$2.00, ether 25 cents."

Quoting from the author of the book: "He was considered reckless, perhaps mad. It was rumored throughout the country that he had a strange medicine by which he could put people to sleep and carve them to pieces without their knowledge. His friends pleaded with him to abandon its use as, in case of a fatality, he would be mobbed or, in present day parlance, lynched."

After his graduation at Philadelphia, Crawford W. Long had his fancy completely captured by Caroline Swain, the daughter of a planter whose brother was governor of North Carolina and later president of the State University. There were other notables in the family. She was fourteen at the time of Crawford's enamoration, and sixteen at the time of the first use of ether in a surgical operation. She seems to have encouraged him to continue with his experiments. She developed a reputation as a letter writer more especially after becoming Mrs. Crawford W. Long. In one letter to a friend, she says "I so often sat with a book or some light sewing, watching for a 'solitary horseman.' For his dear presence, loving words, fun and frolic, I lived. The laborious life of a village doctor with an extensive practice in the adjoining country and villages and towns, without railroads, is hard to conceive now. To reach his patients, swollen streams had to be crossed at the fords amid dangers, winter's cold and summer's heat disregarded, with loss of sleep and exhaustion the consequence.

"But returning to my pleasant window, I yet see him dressed in a light blue summer suit, collar and cuffs black, tan-colored gloves, wide-brimmed white hat, sitting superbly on his dapple-gray charger, firm, dignified—he rides like one to command."

"During the earlier years of his practice the doctor was growing mentally in his chosen profession. His practice, already large, was extending; his fame as a surgeon acknowledged by the most eminent practitioners of that day, they often sending for him long distances to assist in difficult operations. His hands were remarkably supple and shapely in appearance, their extreme sensibility to touch being of great advantage in certain kinds of practice. His ideals were noble and lofty, causing aspirations to make the most of himself for the good of mankind. For this he loved, labored and suffered." Again she says: Just at this time the striving village doctor was on the eve of a great discovery, successful anesthesia in surgery. It occupied his mind so much that he took time to write for publication in 1849 his experiments in the use of sulphuric ether in surgery. He used this method whenever he could induce his patients to submit to the 'dangerous drug.'"

In that day surgery was unusual and the opportunities for Long to try out his discovery were few and far between. There were no industrial ac-

cidents. There was no understanding of the multiple uses of surgery. Mesmerism was in the heyday of its glory and there were those who felt that the ether used by Long had its marvelous effects upon the magnetic personality of the physician rather than from any chemical effect of the drug. Buxton of London said: "Many leading men in medicine and surgery accepted mesmerism as the long-hoped-for panacea whereby suffering humanity would pass unflinchingly through the ordeals of the surgeon's knife." Taking these facts and the natural tendency of the human mind to balk at the acceptance of things that are new, no matter how great their importance, we can understand the difficulties the great Long had at getting his ideas accepted.

Of the controversy which long raged to settle the question as to who deserves credit for the first use of ether, little need be said except to mention that Mrs. Taylor supports the statements already quoted relative to her father's use of ether in a surgical operation, and in subsequent operations, by numerous affidavits and statements which cannot be questioned as to their reliability and authenticity.

Doctors Henry Bigelow and Warren Hayward, on October 16, 1846, operated upon a young man at the Massachusetts General Hospital under ether administered by Morton. In the words of Oliver Wendell Holmes: "It was formally introduced to the scientific world in a paper read before the American Academy of Science and Arts, by Dr. Henry Bigelow, one of the first, if not the first, of American Surgeons." Ether is referred to as "Letheon."

Long had no such mouthpiece. He read Dr. Bigelow's article in the Boston Journal and wrote: "Having on several occasions used ether, since March, 1842, to prevent pain in surgical operations, immediately after reading this notice of 'Letheon' I commenced a communication to the Medical Examiner for publication in that Journal, to notify the medical profession that sulphuric ether, when inhaled, would of itself render surgical operation painless, and that it had been used by me for that purpose for more than four years." His writing was then interrupted by a very busy and absorbing country practice. Several more articles on etherization appeared in the January issue. He then determined to wait a time to see if any claims were made which would antedate his use of ether, before putting forth his claims, which his friends insisted that he do.

Dr. Paul F. Eve of Augusta, Georgia, the Nestor of southern surgery and the editor of the Southern Medical and Surgical Journal and later professor of surgery at the University of Louisville, invited Dr. Long to Augusta and, in introducing him to the class in surgery, said: "Young gentlemen, this is the event of a lifetime. I introduce no distinguished individual. Our guest today comes unheralded. No great honors are heaped upon his head. He is a plain practical doctor. He comes, however, well equipped for the duties of his profession. He is learned, painstaking and very observant. His researches so far have already convinced the profession that a bright and useful life is before him. While quiet and diffident, he possesses all the requisites of success. He has already mastered a scientific solution that when properly learned will entirely revolutionize the field of surgery. I introduce Crawford W. Long of Jefferson whom posterity will honor as the very first man to apply practical anesthesia successfully to surgical operations. A. Wells, a Morton, or a Jackson, or a James Y. Simpson, the world renowned Scotch obstetrician, may for the present wrest the honors from Dr. Long." That same year, 1849, Dr. Long published in the Southern Medical and Surgical

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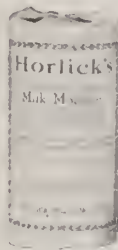
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Journal an account of his researches—with affidavits.

In 1847, he gave his wife ether for the delivery of an heir, and up to his death, in 1878, he used it at his discretion in all such cases.

Dr. Charles T. Jackson of Boston, learning of Long's experience with ether, visited him and compared notes on the use of ether and became convinced that Long deserved credit for its first use. Jackson had inhaled ether once—February of 1842—after getting his lungs full of chlorine. He found, he said, that the ether eased the pain which had been caused by the chlorine. There was no claim that he even dreamed that ether might be used as an anesthetic.

Long kept Morton, Jackson and others from getting recognition from Congress as discoverers of ether, but asked for nothing for himself.

Dr. Hugh Young, in a paper on the subject, said: "Long's work was unknown to the world until 1877 when J. Marion Sims, learning of him through accident, investigated his claims, was fully convinced of their merit, and vigorously demanded their recognition by the medical profession. His paper appeared in the Virginia Medical Monthly, May, 1877."

In 1851, Crawford W. Long moved to Atlanta, Georgia, and soon had not only a large medical practice but a large wholesale and retail drug business. One of his clerks said of him: "He was quiet, unassuming, gentle and gracious in manner, but was exacting and particular in business dealings and required order, system, and cleanliness in all the appointments in store and office. He was of a sociable disposition, which attracted many friends who enjoyed his quiet pleasantries and good humor."

His wife's journal contains the following: "We had prospered in this world's goods, had a lovely home and sweet, pleasant children—two sons and three daughters. My husband was the leading physician, fine looking, a devoted husband and father a kind, judicious master, beloved and respected by all classes. Our home was a paradise where our 'olive plants' thrived apace. A larger and lucrative practice enabled us to live handsomely, without entrenching on other sources of revenue. Our olive plants became more numerous, but it mattered not—we had a welcome for all. They made us very happy."

Long's one political speech was made against secession. The war came and with it destitution for all. Dr. Long was chosen to remain at home and care for those who needed medical attention there. His family has a memorial of his services during the war in the form of a Cross of Honor from the Georgia Division of the Daughters of the Confederacy. In the flight of the family from the 'march to the sea' Mrs. Frances Long Taylor carried suspended from a string about her neck and hidden beneath her skirts, lengthened for the occasion, a jar in which were Dr. Long's papers relative to his discovery and use of ether anesthesia. Mrs. Taylor says: "My mother often said that she gained freedom when slavery was abolished, and was glad to be relieved of so much responsibility."

Quoting: "He dressed well; he wore what was called a frock coat. A very dark dahlia was his favorite color, also black and dark gray. His suits generally were made to order by the best tailors, usually of broadcloth. He was particular in all his personal habits. The first day of May opened the season for wearing his immaculate white vests, which continued until November first."

An imposing granite monument presented by Dr. Lamertime G. Hardman of Commerce, Georgia, stands in the center of the public square facing

the spot where the first painless operation in modern surgery was done.

Dr. Hutchinson said of Long: "In many matters he was ahead of his day and generation. He was one of the first to hold the belief that tuberculosis was curable and that fresh air and diet would effect cures of this dreadful malady. He was one of the first to discover that the bilious fever of the south is a form of malarial fever and that quinine is its specific remedy. He was also among the first to treat typhoid patients in almost the identical way in which the physicians of today handle that disease. He was years ahead of the record in the removal of a cancer from the breast of a woman by the famous Halstead operation. And he added to the sum of human immunity from horror and suffering long before Sir James Simpson used chloroform for the same purpose."

A handsome bronze medallion, a creation of Dr. R. Tait McKenzie, was unveiled at the University of Pennsylvania, March 30, 1912, on the seventieth anniversary of the first use of ether as an anesthetic in surgery. On this occasion, Dr. John Chalmers DaCosta said: "The University of Pennsylvania this day hangs his likeness in the Hall of Fame with her noblest sons. He was an honor to his Alma Mater, an ornament to his profession, a glory to his country, and a benefactor to the human race."

A beautiful medallion monument was unveiled, June, 1921, at the University of Georgia and a large granite monument at Danielsville in April, 1926. The outstanding monument of all is that in Statuary Hall at the National Capitol, which was unveiled March 30, 1926.

The reader of this biographical sketch gathers a picture, of a great man, of a great discovery, and a slow, reluctant acceptance of both by a cold matter-of-fact conservative world caring only for truth. The presentation of the material is beautifully done in a beautiful, scientific spirit, by an admirable character.

Let us end this book review by quoting from the remarks of the Honorable Pleasant A. Stovall, Minister to Switzerland: "And so, like the faithful man who knew his work, he was more intent upon healing the afflicted than upon perpetuating his name. All honor to the man who first applied anesthesia practically to surgery; who found a new agency for evading pain; who changed a freak into a great scientific aid; who experimented with a sportive agency and turned it to everlasting account; who paved the way from minor incisions to major operations; who built an arena where miracles might be wrought."

THE INTERNATIONAL CLINICS—by Henry W. Cattell, A.M., M.D., Philadelphia, U.S.A.; with the collaboration of various well known authorities. Volume one; 38th series; J. B. Lippincott Company, 1928.

There are a number of highly interesting articles in this volume among the more important is Visceroptosis, by John Phillips of the Cleveland Clinic. This article is profusely illustrated.

H. J. Panner, Chief of the Roentgen Department of the Rigshospital, Copenhagen, reports a case of vertebra plana. This condition is of rare occurrence, there being at the present time only four cases reported. The first was reported by Calvé. The condition is benign as compared with spondylitis. It is chronic and gives symptoms simulating those of spondylitis; the cause is apparently a loss of bone tissue in a vertebra.

The article on tularaemia, by J. H. Garberson of Miles City, Montana, is exceptionally interesting and worthy of reading by all clinicians. There are a number of valuable surgical articles, among which

may be mentioned one by E. Starr Judd on Pathogenesis of Gastric and Duodenal Ulcers.

The two articles which most interested the reviewer were Renaissance, by John Rathbone Oliver of Baltimore, and Progress of Medicine, by the editor of the Clinics. The article by Oliver is historical, dealing with the development of medicine at the time of the Renaissance and should be read by every physician who is interested in medical history. The article on the Progress of Medicine is for the year 1927 and presents the out-standing contributions during the year.

This volume is unusually interesting.

THE SURGICAL CLINICS OF NORTH AMERICA (Issued serially, one number each month); Volume VIII, Number 1; Lahey Clinic Number; February, 1928; 210 pages with 74 illustrations; paper, \$12.00; cloth, \$16.00 net; W. B. Saunders Company, Philadelphia and London.

There are contributions in this number by Frank H. Lahey, Sara M. Jordan, Robert L. Mason, Lewis M. Hurxthal, Howard M. Clute, John K. Fife, Lawrence W. Smith, John V. Leech, and Lincoln F. Sise.

The most interesting articles, from the standpoint of the reviewer, are: Use of Quinidin Sulphate; Use of Postural Drainage in Postoperative Pulmonary Complications; Use of the Ephedrin in Spinal Anesthesia; and Status Thymolympathicus as associated with Hyperthyroidism. There are a number of other interesting articles dealing with purely surgical subjects.

Sise recommends the use of ephedrin to maintain blood pressure during the course of spinal anesthesia. He reports sixty-six cases, sixteen of which were of their own series, in which ephedrin was used in spinal anesthesia. Fifty to 100 mg. may be given subcutaneously before the anesthesia becomes effective. In case of emergency, 50 mg. more may be given intravenously.

SPECIAL CYTOLOGY—The Form and Functions of the Cell in Health and Disease: A textbook for students of biology and medicine. Contributors: Leslie B. Arey, Percival Bailey, R. R. Bensley, C. H. Bunting, Alexis Carrel, A. E. Cohn, G. W. Corner, E. V. Cowdry, Hal Downey, G. Carl Huber, J. Albert Key, E. B. Krumphaar, Albert Kuntz, Leo Loeb, C. C. Macklin, M. T. Macklin, E. F. Malone, F. C. Mann, David Marine, A. A. Maximow, E. B. Meigs, W. S. Miller, Eugene L. Opie, Wilder G. Penfield, A. T. Rasmussen, J. Parsons Schaeffer, G. E. Shambaugh, P. G. Shipley, G. N. Stewart, D. R. Stockard, D. L. Stormont, Frederick Tilney, T. Wingate Todd, G. B. Wislocki. Edited by Edmund V. Cowdry; The Rockefeller Institute

for Medical Research; 693 illustrations; volume two; Paul B. Hoeber, Inc.; New York; 1928.

The subject matter of this book defies review. There are 43 chapters in the two volumes, the last 18 of which are in volume two. It is only necessary to review the names of the contributors which are given in the heading to realize the authoritative character of the book.

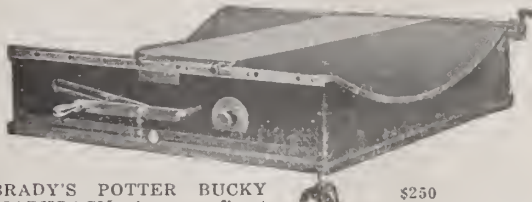
The subjects treated in this volume are: Cartilage and Bone; the Synovial Membrane of Joints and

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The reviewer recommends this as an exceedingly valuable reference book, to the physicians who delve into the deeper problems of medicine.

ALUMINUM COMPOUNDS IN FOOD—Including a Digest of the Report of the Referee Board of Scientific Experts on the Influence of Aluminum Compounds on the Nutrition and Health of Man, by Ernest Ellsworth Smith, Ph. D., M.D., Fellow and Former President, New York Academy of Sciences, Fellow of the New York Academy of Medicine, etc., etc.; Paul B. Hoeber, Inc., New York; 1928. \$7.00.

The reader is impressed that this book is an argument against there being any great or imminent danger from the use of aluminum compounds in foods, at least in the quantities ordinarily used. He must conclude from the evidence presented that the case is definitely established. Dr. Smith speaks authoritatively. If the data presented are correct, we may eat our breakfast biscuits with no thought as to whether the baking powder with which they were made contained or did not contain aluminum compounds.

GYNECOLOGY FOR NURSES. by Harry Sturgeon Crossen, M.D., F.A.C.S., Professor of Clinical Gynecology, Washington University Medical School, and Gynecologist-in-Chief to the Barnes Hospital and the Washington University Dispensary; Gynecologist to St Luke's Hospital; Consulting Gynecologist to the Jewish Hospital, St. John's Hospital and the St. Louis Maternity Hospital; Fellow of the American Gynecological Society and of the American Medical Association; with 365 engravings, including one color plate; St. Louis, The C. V. Mosby Company; 1927; \$2.75.

The publishers have given a great deal for the money in producing this book for \$2.75. The 274 illustrations have probably been borrowed from Crossen's other books. The presentation of the subject matter of gynecology by cuts, legends, and texts, all excellent and to the point, must all but make a gynecologist or, at least, an excellent nurse assistant, of any who will study the book with understanding.

Nurses should highly appreciate the book. Physicians will find it useful to have handy for illustrating to patients many of the problems so often discussed by physician and patient.

STRABISMS—Its Etiology and Treatment, by Oscar Wilkinson, A.M., M.D., D.Sc., Surgeon-in-Chief of Washington Eye and Ear Hospital, Washington, D.C.; illustrated; The C. V. Mosby Company, St. Louis; 1927; \$10.00.

Monographs are really the most valuable type of books. Not the least valuable parts of monographs are frequently the historical and the literature references. There are eight columns of names in the index of authors in this book.

The author hopes to impress upon the public and the profession the importance of caring for the cross-eyed child, with early definite treatment.

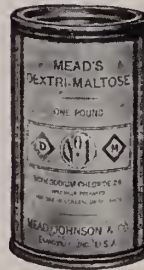
His chapters on etiology and on treatment—especially operative treatment—are in detail and should be particularly interesting to all oculists.

PHYSICAL DIAGNOSIS, by W. D. Rose, M.D., As-

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sociate Professor of Medicine in the University of Arkansas, Little Rock, Ark.; Fifth Edition, 310 illustrations and three color plates; St. Louis; The C. V. Mosby Company; 1927; \$10.00.

Rose has written primarily for the medical student. The essentials of physical diagnosis are presented in as brief and clear a manner as would seem possible. The text is profusely and helpfully illustrated. Many of the cuts seem to be original; others are taken from other works, and credit is usually given. Numbers 18 and 19, however, are from the reviewer's book (Asthma-Brown) and credit is not given, probably through oversight, as others from the same source are credited. Five editions in ten years speaks for the popularity of the book.

Tobacco and Physical Efficiency—A Digest of Clinical Data With Annotated Bibliography, by Pierre Schrumpt-Pierson, M. D., Professor of Medicine, University of Cairo; preface by Henri Vaquez, M.D., Professor of Medicine, University of Paris; published under the auspices of The Committee to Study the Tobacco Problem; with a foreword by Alexander Lambert M.D., president; Paul B. Hoeber, Inc., New York, 1927; \$1.85.

This small volume of 134 pages has 71 pages devoted to bibliography and 55 to text. A tremendous amount of data is presented in relatively few words.

Little seems to be available to say, for tobacco, but much against it. The data, however, are more suggestive than actually convincing and conclusive. Quoting one paragraph: "Although the number of smokers and non-smokers in the college is practically the same, ... yet out of 23 students dismissed last year for low scholarship no less than 21 were smokers. As one ascends the scale of scholarship, the proportion of non-smokers grows steadily greater. And, in general, those

who smoke much have lower scholarships than those who smoke little." One can easily see that the results indicated as chargeable to the tobacco might be directly due to loafing with which the smoking had relatively little to do. One worker in a series of tests found that smoking produced a ten per cent decrease in mental efficiency; in the field of imagery there was a twenty-two per cent loss.

The book is worthy of study. Especially is it recommended as a book for young folks, or older ones, who are contemplating taking up the use of tobacco.

One error occurs: on page 12 the letter "s" is left out of "predisposed."

EL PASO COUNTY PERSONALS

DR. H. T. SAFFORD has left for an extended auto tour of the Pacific Coast.

DR. HENRY SAFFORD is spending a part of the summer acting as an interne at the Baptist Sanatorium.

DR. J. A. RAWLINGS is spending six weeks on the Atlantic Seaboard.

DR. J. D. RILEY is spending June at the Alumni Clinics in Chicago.

DR. J. A. PICKETT and DR. PAUL GALLAGHER have opened offices on the fifth floor of the Roberts-Banner Building.

DR. W. L. BROWN has been a Los Angeles visitor in early June.

DR. E. O. EGBERT and DR. RALPH HOMAN acted as delegates at the Galveston meeting for the El Paso County Society. DR. JAMES LAWS acted as counselor.

DR. HARRY NEWMAN was elected President of the EL PASO PATHOLOGICAL SOCIETY for 1928-1929; Dr. F. D. Garrett, Vice-President; Dr.



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DR. VAN ATTA of Albuquerque was an El Paso visitor in late May.

On May 28th the Medical Auxiliary and the County Society gave a dinner dance and banquet complimenting DR. and MRS. F. P. MILLER. This was to honor the occasion of Dr. Miller's installation as President of the Texas State Medical Society.

MAJ. T. E. SCOTT, for seven years stationed at Wm. Beaumont Hospital at Ft. Bliss, has been ordered to West Point to act as Chief of the Medical Service there with Col. Shockley, formerly of Beaumont Hospital.

DR. WILKINSON, late of Nacozari, is at present in El Paso.

DR. GREEN, local surgeon of the Southern Pacific, was in El Paso early in June.

DR. Z. CAUSEY, county health officer, Douglas, Arizona, was recently operated at Hotel Dieu. He is now at home convalescing.

DR. HUGH CROUSE continues ill with very little improvement.

DR. B. F. STEVENS and family visited the Ruidoso late in May.

DR. F. D. GARRETT addressed the Tri-State Dental Convention in El Paso, June 6. The subject of his address was: "Diet in Relation to Good Health and Good Teeth."

THE BAPTIST SANATORIUM in El Paso will remain in operation, according to a decision of the Southern Baptist Convention in annual session in Chattanooga, May 17th. It was proposed to sell this property, but the representations of

Dr. H. F. Vermillion, the superintendent, resulted in a decision to continue its maintenance.

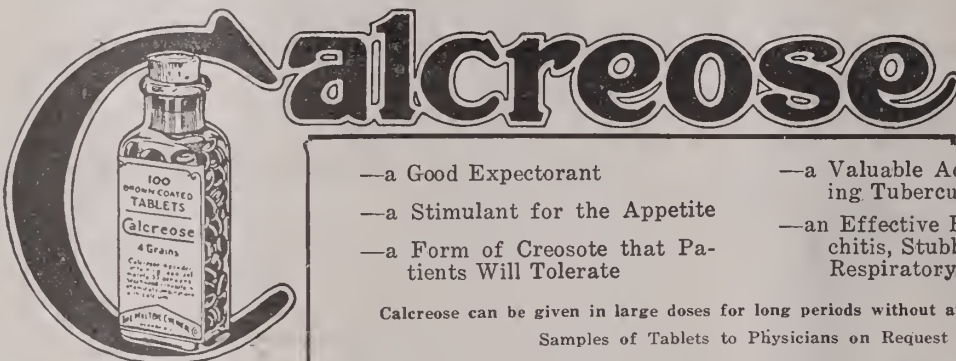
DR. FELIX MILLER of El Paso was inducted into the office of president of the Texas State Medical Association at its sixty-second annual convention at Galveston, on May 8th. He began his administration with several activities; a public address on Sunday, May 6th, a memorial address at the alumni banquet of the University of Texas Medical College on May 8th, and the inauguration of the Association's activities by the appointments of various section and committee chairmen. Among the El Paso doctors appointed on committees are included: Dr. T. J. McCamant, public health and hygiene; Dr. R. L. Ramey, transportation; Dr. J. W. Cathcart, cancer; Dr. Willis W. White, scientific exhibits.

Dr. K. D. Lynch was appointed fraternal delegate to the New Mexico Medical Society and Dr. George Turner to the Arizona State Medical Association.

Among the El Paso doctors on the Convention program are Drs. W. L. and C. P. Brown, J. W. Laws, Ralph Homan, S. A. and F. P. Schuster, Orville Egbert, W. W. Waite and J. G. Wilson.

The INTERSTATE POSTGRADUATE ASSOCIATION, meeting in Los Angeles the last of May attracted quite an attendance. A special train of seventy-five physicians were entertained in El Paso for an hour on May 25th, while a new train was being made up for them. Dr. Felix P. Miller and officials of the chamber of commerce took them on a trip to Juarez during the wait.

DR. S. L. TERRELL, of El Paso, was married on May 19th to Miss Clivia Wilson, at the home of Mayor and Mrs. R. E. Thomason, following



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which they left for New York and from there took boat for an extended trip in Europe.

The estate of DR. J. M. RICHMOND, of El Paso, is being sued for \$10,000, for alleged damages to the leg of a patient who was given electrical treatment. Dr. Richmond was killed in an automobile accident in August of last year, and suit is being brought against the estate.

NEW MEXICO PERSONALS

DR. CHARLES H. MAYO, accompanied by Mrs. Mayo, was a visitor for several days in Santa Fe, early in May. The local medical society took advantage of his visit and secured his attendance at one of their regular sessions, where he discussed a variety of medical topics with them. He was much impressed with the opportunities for heliotherapy in and around Santa Fe.

DR. A. J. BURCH of Reserve has been appointed part-time health officer of Catron County, succeeding Dr. A. A. McDaniel who has moved out of the county.

DR. F. W. FORGE, from the Field Training Station of the Rockefeller Foundation in Ohio, has been appointed full-time officer of Chaves County and has assumed his duties. He is a native of Canada and a graduate of Toronto University.

ARIZONA DEACONESS HOSPITAL (Phoenix) CHANGES NAME

By action of the Board of Trustees of the Arizona Deaconess Hospital, the name of this institution has been changed to the Good Samaritan Hospital. It is thought that this name more nearly represents the organization basis of the hospital, which is to represent all the Protestant churches of that district. The Board of Trustees consists of fifteen members elected by the stockholders or contributors to the maintenance of the hospital; eight of these must be members of the Methodist Episcopal church.

THE NEW CHEVALIER JACKSON BRONCHOSCOPIC CLINIC OF THE NEW GRADUATE HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA

Announcement is made by Dr. George H. Meeker, Dean of the Graduate School of Medicine of the University of Pennsylvania of the opening on March 31, 1928 of the newly and completely equipped Chevalier Jackson Bronchoscopic Clinic of the new Graduate Hospital of the University of Pennsylvania at 19th and Lombard Streets, Philadelphia.

The new Bronchoscopic Clinic will be in personal charge of Dr. Chevalier Jackson, Professor of Bronchoscopy and Esophagoscopy in the Graduate School of Medicine of the University of Pennsylvania. The Clinic is very handsomely and completely equipped, through the generosity of Mr. Frederick S. Bigelow, a member of the Board of Hospital Managers. The Bronchoscopic Clinic of the Graduate Hospital will be the headquarters for bronchoscopic instruction to physicians who come to the Graduate School of Medicine for the regular courses in otolaryngology, or for the special courses in bronchoscopy. The special courses in bronchoscopy which are offered to otolaryngologists and surgeons are conducted at stated two weeks' periods to limited groups of physicians who have previously registered with the Dean. The

future periods thus far announced are as follows: May 28 to June 9, 1928, and August 6 to August 18, 1928. Further dates may be obtained from time to time by application to the Dean.

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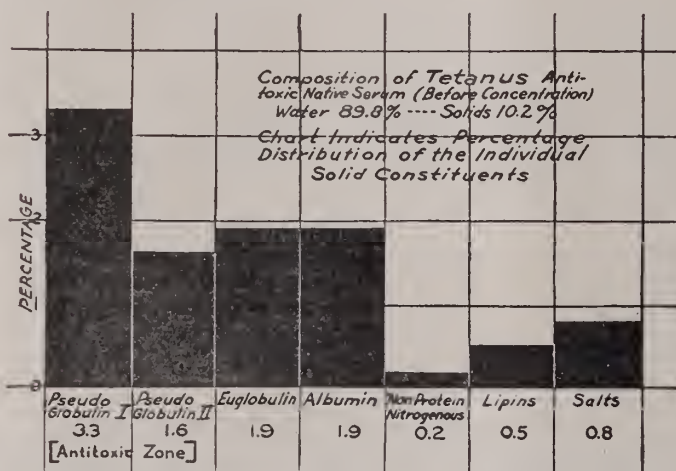
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TUBERCULOSIS ABSTRACTS
A REVIEW FOR PHYSICIANS

SOUTHWESTERN MEDICINE

Distributed by the
ARIZONA ANTI-TUBERCULOSIS ASSOCIATION

Volume XII

June, 1928

No. 6

THE quest for a cure for consumption is probably as old as history. Koch raised hopes of finding a specific cure in tuberculin, the concentrated media of broth cultures of tubercle bacilli. His failure has since been followed by numerous others. In the files of the National Tuberculosis Association there are today records of 680 "cures" some that give pause to thought, some ingenious, but most of them ridiculous. Meantime, rest, fresh air, and good food have been established as the tripod on which the treatment of tuberculosis depends. Latterly rest has been so unanimously emphasized by clinicians who specialize in tuberculosis that it might be regarded as the pillar of successful treatment, while fresh air, good food, artificial pneumothorax and other therapeutic devices might be considered as supplementary supports.

Rest Is Relief from Strain

Rest may mean the sloth of the indolent or the relief from tension that follows change of occupation, says Allen K. Krause. Therapeutically however, rest represents *relief from strain*. Treatment must aim to limit and confine the activities of tuberculous foci and to reduce to zero or a minimum the absorption of harmful focal products. At any time, undue stress may stir quiescent foci into renewed activity. It is axiomatic that uncontrolled movement of a diseased or injured part will promote the spread of the disease and delay recovery. To stop the progress of tuberculous foci is to cure tuberculosis.

Fever, fatigue, loss of appetite and other constitutional symptoms of tuberculosis are manifestations of intoxication resulting from absorption of focal substances. The rate and capacity of this absorption depend on the circulatory and respiratory activities of the body. Rest brings about a diminution of physiological demands and reduces the amount of focal absorption.

Rest for the sick man is a better "tonic" than exercise. As a result of prolonged rest, the appetite returns, the fever falls and a sense of well-being sets in, while depleted reserves are built up, thus assisting in the healing of foci. Rest is a potent medicine, to be prescribed according to the requirements of each individual case by a physician who understands its use.

The febrile, acutely ill cases must have absolute bed rest for at least two weeks after the temper-



Of all the countless remedies proposed, rest alone has stood the test of time.—Gerald B. Webb

ature has returned to normal. After the constitutional symptoms have disappeared, the patient must still be kept below the fatigue line. The fatigue line is an individual affair, registered only in the patient's own consciousness. The duty of the physician is to explain to the patient why relief from strain is important. But there can be no set formula for the individual patient; he must rely on his own intelligence and behavior. Rest should be so engraved on the patient's mind that he will automatically respond with rest to the first symptom of fatigue.

Sanatorium treatment is vastly more satisfactory for the majority of patients since rest and discipline and the means of insuring these are more readily

obtainable there. The sanatorium, moreover, teaches and trains the patient how to care for himself.—*Rest and Other Things*, Allen K. Krause, Williams and Wilkins Company.

Food Requirements and Fresh Air

Good nutrition is important, but "stuffing" the patient, as formerly practiced, is a mistake. Over-eating is like clogging an engine with unburnt carbon by using too much fuel. Sometimes, the appetite must be cajoled. Three good meals a day, two or three glasses of milk (with or between meals), one or two eggs a day, are often sufficient to add enough to the patient's weight to bring him the gain wished for. A good general rule is that the least amount of food that will enable any patient who is underweight to gain up to and slightly beyond the normal weight is the optimum diet for that patient.

Fresh air as a "cure" for tuberculosis has probably been overemphasized by the laity. It is, however, an essential aid to recovery. Outdoor air is a mild and beneficial stimulant. Sleeping out of doors does not necessarily hasten recovery, provided eight to ten hours a day are spent in the open air and the night passed in a well-ventilated room. Mere dryness of the air is of little avail. Temperature, humidity and air movement determine the quality of indoor ventilation.—*Rules for Recovery from Tuberculosis*, Lawrason Brown, Lea & Febiger.

Disposition of Patients

Patients may be divided into three groups as far as treatment is concerned:

1. Suspects, cases under observation, and those in which the diagnosis is not definite, can be treated at home or fall into groups (2) or (3). The patient is on trial and more radical measures, such as going to a sanatorium, may be, and very likely will be, necessary. In a few cases of this group, sanatorium or hospital treatment, if it can be obtained at once, is of great value educationally and otherwise and entirely justified in instances where adequate home treatment is not possible in order to clear up a diagnosis.

2. Cases in which the diagnosis is definite and in which the disease is progressive, with or without a positive sputum, should be sent to a sanatorium or hospital at once and should remain as long as the

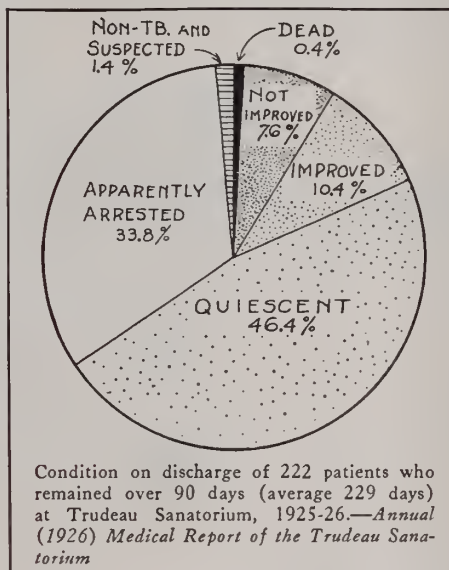
physician considers it necessary. This is the ideal to be sought for in the great majority of cases. Home treatment may be substituted (a) when there are no children in the family who might be exposed to the disease in the open form, (b) when the intelligence of the patient or his family is such that adequate carrying out of details is assured, (c) when good nursing and medical service is available and (d) when there are facilities for proper outdoor treatment.

3. Arrested, apparently arrested and quiescent cases need close medical and nursing supervision if the good done at a sanatorium is to be permanent. Home treatment may be satisfactory for the majority of these cases. Frequent visits to the home by the nurse and monthly consultations should be required. The amount of work done and the choice of employment are to be decided by the physician. The patient should know that it may become necessary at any time for him to return to the sanatorium when indications of an impending breakdown occur.—*Diagnostic Stand-*

ards Pulmonary and Glandular Tuberculosis of the National Tuberculosis Association, Seventh Edition, November, 1926.

Climate and Altitude

There is no specific for the cure of tuberculosis. Climate is not a specific. Altitude is not a specific.***No physician, therefore, is justified in advising a change of climate unless he knows that the patient's financial status will enable him to command the essentials. To put it categorically, if a little arbitrarily: proper medical supervision, sanatorium regime, either in



a sanatorium or in the home, reasonable contentment of mind and intelligent cooperation count ninety or ninety-five per cent of effective therapeutics; climate and change of environment count five or at the utmost ten per cent. Why, therefore, sacrifice the ninety or ninety-five per cent for a five or ten per cent in those cases who can not command the one hundred per cent? On the other hand, if the patient can afford to go to a first class sanatorium or secure the services of a good phthisiologist in a more salubrious climate, and will be reasonably contented away from home, by all means he should be urged to avail himself of the full one hundred per cent of these efficacious measures.—Louis C. Boisliniere, *Journal of the Outdoor Life*, February, 1928.



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SOUTHWESTERN MEDICINE

Volume XII.

JULY, 1928

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THE VALUE OF THE LABORATORY TO THE CLINICIAN

F. G. SCHAIKLE, M. D.,
Tucson, Ariz.

(Read at the thirty-seventh annual meeting of the Arizona State Medical Association, held at Tucson, April 19-21, 1928.)

Pathology, in its broader meaning, being the basis of scientific medicine, it is indeed appropriate that this meeting should open with a paper on laboratory work in its relation to and as an aid to the clinician in diagnosis. Accuracy in diagnosis, as pointed out by pathologists who have an opportunity to compare the clinical diagnosis with autopsy findings, has failed in a great measure; therefore, any information by those striving to be exact should not be overlooked. The clinician, best able to interpret symptoms and physical signs, when he thinks it necessary to make a laboratory search to substantiate his findings, should call on the laboratory as an aid. This presupposes, on the part of the pathologist a knowledge of the materials to be examined and the methods of interpreting the results by the clinician.

The materials that may be submitted for examination are the following: Blood, spinal fluid, transudates and exudates, gastric contents, feces, urine, sputum, surgical tissues.

BLOOD.

Blood, the fluid tissue of the body, is divided for examination purposes under the following headings:

Cytology: It is unnecessary for our purpose to discuss the ancestral cell of the group of blood cells. Suffice it to say that as to their histogenesis, they are produced by the bone marrow, spleen and lymph glands and that we have an erythroblastic and leucoblastic hyperplasia or metaplasia, according to the stimulus. For example, any agent as a hemolysin which decimates a large proportion of red blood cells makes the blood forming organs hyperplastic, both erythroblastic and leucoblastic. These changes, however, are not always manifest in the peripheral circulation. In infection

and toxemia due to chemotactic influence, we have a leucocytosis resultant. Therefore, to learn the disease condition of the blood, it becomes necessary to enumerate the red blood cells, white cells and blood platelets in a cubic millimeter of peripheral blood, to note the percentage of hemoglobin, and the morphological (regenerative and degenerative) changes, as well as the staining affinity of the blood cells. These determinations tell us whether anemia or leucocytosis pertains and the clinician, knowing the symptomatology can in most instances classify the type of anemia and whether or not the leucocytosis be temporary or permanent. Routinely, it is important to examine the blood because any symptom complex may be due to or associated with a disease of the blood. The assertion that pernicious anemia occurs with more constancy in certain locations is not so in fact but is due to the ability of the men in these places to better recognize the disease. In the comparatively short time that I have been here we have noted two cases of lymphoid leukopenia; both were unrecognized clinically. Another condition which we have had to deal with recently, is agranulocytic angina. This disease is manifested clinically by sudden onset, chill, sore throat, high temperature and bad prognosis. It is an infection of the throat which produces a toxic condition of the bone marrow, a marked leukopenia, a disappearance from the blood of all the polymorphonuclear neutrophils and a severe anemia. One case showed a leucocyte count of 400 white cells per cubic millimeter of blood with a mononucleosis of which ninety-six per cent were lymphocytes.

Parasitology of the Blood. For malarial protozoa, the intra-corporeal cycle is best studied in fresh specimens. When this is not possible, stained specimens may be used. In intermittent fever, the therapeutic test with quinine should not be made unless it is impossible to make a satisfactory blood examination. In giving quinine, the parasites cannot be found in the circulating blood; hence, diagnosis remains un-

certain and the patient is likely to be subjected to a long course of unnecessary treatment. In trypanosomiasis (sleeping sickness), the trypanosomes can be demonstrated in the wet preparation, exhibiting a slow spiral movement. They are found free in the plasma but may also be seen in the interior of leucocytes. Dry smears may be stained and the parasites found as in the staining of malaria. In relapsing fever, the spirochete of Obermeier can be shown in the fresh and stained films. These spirochetes in the fresh specimen have a wriggling movement which agitates the cells of the blood.

In kala azar (*Protozoa Leishmania Donovanii*), the parasites are seldom found in the peripheral blood, and only when the temperature is high. Splenic puncture gives the best results. The organisms are chiefly found in the large mononuclear cells.

In filariasis we find the microfilaria (embryo) in the circulating blood in large numbers during the night, almost disappearing during the day; they invade the lymph vessels, producing lymphangitis, especially of the scrotum and legs (elephantiasis).

In trichinosis. Embryos of trichina may appear in the blood stream about the twenty-third day after infection; this, together with a marked hypereosinophilia, renders a positive diagnosis.

In trichinosis, embryos of trichina may found in the portal system through which they invade the urogenital system; diagnosis is made usually by finding the ova in the urine.

Bacteriology: Blood cultures in typhoid and paratyphoid are positive during the first week of the disease, the Widal being rarely positive before the end of first week and may be delayed until the third week. In septicemia, various bacteria may be found in the blood; for example, streptococcus, pneumococcus, colon bacillus, less frequently gonococcus, meningococcus, bacillus of anthrax, gas bacilli and bacillus pyocyaneus, streptococcus putridus in septic abortion, rarely, the diphtheria or influenza bacillus, bacillus proteus, bacillus fecales, alkaligines or micrococcus tetragenus.

Serum Reactions: Agglutination reactions in typhoid and paratyphoid begin usually by the end of the second week, may be delayed until the third week and persist for months after infection. Other serum tests of value are Weil Felix agglutination in typhus (*proteus bacillus* 1-25-200); complement fixation in tuberculosis and syphilis, gonorrheal fixation in complicated gonorrhea to diagnose latent foci of infection. In syphilis, a positive Wassermann reac-

tion tells of the presence in the blood or spinal fluid of certain defensive bodies re-pallida. It may occur as soon as primary sore is recognized, but more often occurs during the development of the secondary symptoms about six to eight weeks after infection. Negative reactions at times occur when recognizable active lesions are present; this is probably due to the inability of the cells of the body to manufacture the detectable bodies or to the ingestion of alcohol or effect of antiluetic treatment. Yaws, a disease related biologically to syphilis, but distinctive in etiology, pathology and clinical manifestations, gives, after a long continued infection, a cross protection to a certain extent against syphilis. Yaws gives a positive Wassermann reaction during the early stage, which remains positive in the latent period. Other conditions in which positive fixation has been said to have occurred are leprosy, tuberculosis, scarlet fever and psoriasis. Excluding technical errors, it is safe to say that they were complicated by syphilis; i. e., if the fixation was complete and not due to anti-complementary substances which may occur normally in sera and give partial or incomplete fixation. The Wassermann reaction is a complicated biological reaction based on the phenomenon of complement fixation, the true nature of which is still undetermined; i. e., whether it is a physical, chemical or physico-chemical process. Substitutes for the Wassermann such as the precipitation tests, as described by Meinelcke, Sachs, Georgi, and Kahn, are unreliable and are of value only as confirmatory when used in conjunction with the Wassermann reaction.

Blood Chemistry: Since methods have been devised to determine the chemical composition of blood, valuable information has resulted in constitutional diseases as diabetes, gout and nephritis. The older examinations of the blood, cited above, as cytological, bacteriological and serological, gave little information in these metabolic diseases. The time of taking the blood is in the morning before breakfast; that is, after a fourteen-hour fast and before any fluid or food has been taken. Take the specimen of blood by venipuncture in a bottle with capacity for 15 c.c. blood, into which three drops of a twenty per cent solution of potassium oxalate has been placed.

Renal diabetes (renal glycosuria), a relatively rare condition, may be differentiated from diabetes mellitus by the constancy of the glycosuria independent of the carbohydrate intake, the normal quality of the variation of the blood sugar, and the absence of diabetic symptoms. Here the point of

entrance of sugar excretion is below the level of normal blood sugar.

In diabetes mellitus, when the blood sugar is slightly increased above 0.17 per cent, a glycosuria is present, except in advanced cases showing nephritis, when the blood sugar may be 0.3 per cent without the appearance of sugar in the urine. Extended medical or surgical treatment should not be attempted on a severe diabetic without a knowledge of the blood sugar and the alkali reserve as indicated by the carbon dioxide of the blood. Insulin not only regulates carbohydrate metabolism, but indirectly has an influence upon fat metabolism and acidosis. Without the oxidation of a certain amount of carbohydrate, there is an incomplete oxidation of fat, giving rise to the ketone bodies which, in turn, produce an acidosis.

In gout, the uric acid is considerably increased, which makes this fact of importance in differentiating it from arthritis in which the uric acid is normal.

Essential hypertonia, is so diagnosed at times, but when the chemical changes in the blood are known, high uric acid, urea nitrogen and creatinin, the condition is shown to be a nephritis, arteriosclerotic in type.

In differentiating apoplexy and uremia, negative blood findings exclude uremia.

In eclampsia, nonprotein nitrogen is high normal or definitely increased, uric acid is high, urea nitrogen normal or subnormal; considering these findings, true eclampsia shows only slight renal involvement.

In urology, preoperative information of the chemistry of the blood in all surgical conditions of the kidneys, bladder and prostate is required. Patients presenting urea nitrogen over 25 mg. should be operated with caution and best after treatment to relieve the nitrogen retention. If the urea nitrogen is under 20 mg. per 100 c.c. of blood, these patients may be considered good operative risks insofar as their kidneys are concerned.

In intestinal obstruction, there is high nonprotein nitrogen and urea nitrogen.

In general peritonitis, as after rupture of the appendix, if blood urea is markedly elevated, prognosis is poor.

In nephritis, uric acid is high, an earlier diagnostic sign than albumen, urea and cylindruria urea nitrogen and creatinin are increased.

Creatinin is slightly increased in syphilis, certain heart conditions, advanced diabetes, with high figures often in advanced nephritis. Those showing five milligrams or over show little improvement and die in a comparatively short time.

Calcium is decreased in tetany and advanced nephritis.

METABOLISM

The sum of all the physical and chemical processes by which living organized substance is produced and maintained and, also the transformation by which energy is made available for the use of the organism. Amounts and degrees of these processes may be derived in many ways, such as control of food, chemical examination of excretory products, or thermal changes. At a very early date, clinicians began to study the gaseous exchanges in disease but the methods were so crude and the normal processes so imperfectly studied that the results of this labor amounted to little. From these early experiments, however, have been derived our present day metabolic apparatus, some of which measure the amount of oxygen consumed, others the amount of carbon dioxide. Both methods determine the calories of potential heat which is the unit of energy desired. Since we know from chemical and physical experiments the composition of most foods, a great number of our present day diseases can be controlled by diet. The sum total of metabolic tests are to aid the clinician in his diagnosis and watch the progress, giving the deviation from normals.

The metabolic rate has as variable factors, temperature, barometric pressure, surface area, sex and age. Knowing what these factors are, experiments have fixed definite metabolic rates for certain fixed conditions. Using these as standards, changes brought about by disease can be noted.

Many conditions change the metabolism from normal to plus or minus. Under-nutrition gives a striking reduction.

Diabetes gives low reading from plus 2 to minus 18 average, one case cited by Harris and Benedict gave minus 50. Thyroid diseases give decided changes in metabolic rate, ranging from plus 20 or higher, in exophthalmic goiter, to minus 20 or below in myxedema, hypothyroidism and malignant thyroid.

Other outstanding diseases showing variations in metabolic rate are dysphagia, minus 20 to plus 15; Addison's, minus 20 to plus 15; arthritis, minus 20 to plus 15; anemia, minus 20 to plus 15; diabetes insipidus ranges in the positive zone; Hodgkin's disease, one hundred per cent above plus 20; polycythemia, fifty per cent above plus 20; ductless glands, eighty-seven per cent above plus 20; encephalitis, twenty per cent above plus 20.

TRANSUDATES AND EXUDATES

These are fluids which appear in the tis-

sues and cavities of the body. Transudates are noninflammatory in origin, exudates resulting from inflammation. Since transudates are not inflammatory in origin, they are rather clear, light yellow or have a greenish opalescence. Exudates may be serous, serofibrinous, purulent, putrid or hemorrhagic. Chemically, the amount of albumin is greater in exudates and we have a cellular reaction depending upon the nature of the infecting organisms.

GASTRIC ANALYSES

Analysis of the stomach content of late has fallen into some disrepute. The results are influenced by many intra and extra gastric factors and can be interpreted only in the light of the clinical findings.

FECES

Stool should be passed in a clean vessel without the admixture of urine. In examination for amebae, the stool should be kept warm and examined in this condition. Pathologically, we may find increased amounts of normal constituents, blood, pathogenic bacteria, animal parasites and their ova and biliary and intestinal concretions. If a search for amebae is desired, no disinfectant should be added to the stool.

URINE

The routine examination of urine is familiar to all. Suffice it to say, that no quantitative determination should be made unless a sample of a mixed twenty-four hour urine be used. Instruct patient to collect urine for twenty-four hours in a clean vessel, kept in a cool place, mix it well, measure the quantity and bring eight or more ounces to the laboratory.

SPUTUM

When collecting the sample for examination, the morning sputum, or the whole amount for twenty-four hours, should be saved. Have the patient rinse the mouth well to avoid contamination by food stuffs. Early morning specimen coughed from the lung or bronchi is preferable. Sputa should be examined microscopically in the fresh and stained preparation. Concentration of the sputum is often advisable.

CEREBRO SPINAL FLUID

Normally, the spinal fluid is clear and practically void of cellular elements, and is best collected in three sterile test tubes. In disease, the fluid may be cloudy, or dull red or brown in color, seen in hemorrhagic conditions. In compression of the cord by a tumor, the fluid presents Froin's syndrome; namely, a clear yellow color, rapid and marked coagulation, large amounts of globulin and no blood pigments by chemical tests. Abnormal amounts of globulin; i.e.,

increase, occur in acute infections, in tuberculous meningitis and in syphilitic and parasymphilitic affections. In the acute infections where a polynucleosis is present, the normal reducing substance is absent, though present in the chronic types of infections. Cytology; in the acute infection, there is a polynucleosis, in chronic infection, a mononucleosis. The Wassermann test is applied to the spinal fluid using larger quantities than used in the examination of blood serum. In syphilis of the nervous system, general paralysis of the insane, and tabes dorsalis, Lange's gold test will give reduction in the left of the series; i. e., in low dilutions. In tuberculous meningitis reduction occurs in the middle, and the acute purulent forms of meningitis in the right of the series; i. e., the high dilutions.

SMEARS, CULTURES AND ANIMAL INOCULATION

These are made to determine the exciting organism present.

Many other laboratory tests, too numerous to mention, may be of value to the clinician. Among them are smears for the morphology and staining reaction of organisms. This pertains only to smears from venereal lesions. Smears taken from other portions of the body should always be accompanied by cultures, because often we have two organisms working symbiotically. For example,, direct smears from a lesion in the mouth may show fusiform bacilli and spirilla of Vincent, and the cultures show diphtheria bacilli, which always makes the diphtheria more virulent. There are a number of skin tests used to determine certain conditions of the body tissues and cells. The Schick test is used to determine whether or not immunity to diphtheria exists. Skin tests are used to determine local allergic reactions, by the application on, or injection into the skin or mucous membranes, of the sensitenogen, in individuals hypersensitive to foods, pollens, bacteria and drugs, as well as to horse serum, and to the proteins of the skin and hair of the horse and other animals and the feathers of fowls.

EXAMINATION OF TISSUES

Tissues removed at the time of biopsy or surgical operation should be placed in a fixative solution, carefully labeled and with a slip attached giving as much information as possible pertaining to the case. This is of extreme value to the pathologist.

His interpretation of the morphology of the cells present is only his opinion. Whether the cells are of inflammatory origin or

new growth, malignant or non-malignant, is based on his experiences of a vast surgical material. Many times, men equally experienced will disagree on a tissue, some maintaining the cells are of one type, others of another type. The borderline between malignancy and non-malignancy is a small one in many instances.

Concluding, I would say that positive laboratory findings should be considered as a symptom, not as a diagnosis, and that co-operation between the clinician and the laboratory worker assures progress.

DISCUSSION

DR. W. WARNER WATKINS, Phoenix, Ariz.—This is a very excellent resume of the chief fields of medicine in which the laboratory can be of aid to the clinician. The point which still needs to be emphasized is that the pathologist must be used as a consultant by the clinician, if laboratory aids are to render their full possibilities. The clinician who endeavors to decide for himself just what kinds of laboratory examinations he will ask for will never realize the full value of this field of medicine. If he calls the pathologist into consultation, lays the problems before him and then allows the pathologist to decide what laboratory examinations are indicated, will find that the clinical laboratory has possibilities he never dreamed of.

In our community so simple a thing as a differential count along with the total white count has had to be forced on the attention of our clinicians by our assuming to make the differential as a routine, whether asked for or not. The same thing is now being done with the Kahn test; we are not waiting for the clinician to learn of the value of this adjunct to the Wassermann, but are doing it as a routine. There are many problems in clinical medicine, in which the laboratory may hold some valuable aids, as yet unknown to the clinician, and which will only come to light when the pathologist has opportunity, as a consultant, to suggest them in individual cases.

ENDOTHELIOMA INVOLVING WALDEY-ER'S RING

JOHN J. McLOONE, M. D.

HARLAN P. MILLS, M. D.
Phoenix, Arizona.

Read before the thirty-seventh annual meeting of the Arizona State Medical Association held at Tucson, Ariz., April 19-21, 1928.

An endothelioma is a new growth which is believed to originate from the lining cells of blood and lymph vessels and spaces, subdural and serous surfaces. The question of the importance of this group of tumors has had much discussion by pathologists; some place a very restricted class under this head; others describe a numerous and complex group as endothelioma. This difficulty arises no doubt largely from the variety of cell forms encountered, as well as their arrangement. This variation apparently arises from the peculiar embryological source of their endothelial cell.

It is beyond the scope of this paper to discuss this question except to say that it is fairly well established that the lining

cells of the great body cavities arise from cells lining the primitive body cavity, which forms by a splitting of the two layers of mesoderm. The lining cells of the blood and lymph cells and subdural spaces arise from mesenchymal cells and are closely related to connective tissue. Not only the embryology, but also the physiology of endothelial cells places them in a position intermediate between epithelium and connective tissue.

As an example of the variety of their functional activity we might mention their secretory action, their metabolic activity, as well as their power to proliferate and engage in phagocytosis. It has also been suggested that they are the source of some of the large mononuclear cells of the blood.

Illustrating the proliferative capacity of endothelial cells attention might be directed to the changes in inflammation, which contribute largely to the new cells in the intima of vessels involved in syphilitic and tuberculous endarteritis, and also the endothelial cells in tubercles. In exudates and thrombi they act not only as phagocytes but also as proliferating agents, which promote new vessel formation and organization. This proliferation may proceed to definite tumor formation, inasmuch as endothelioma have been described as arising in an organized thrombus in a vein. In lymphoid structures, marked endothelial proliferation may be seen, as in tuberculous lymphadenitis an entire node may be practically replaced by this cellular structure.

In view of the behavior of endothelium under physiological and pathological conditions, and in view of the distribution of endothelium in every tissue of the body, the possible wide extent of endothelial tumors is evident.

The classification of endotheliomata into definite types has been difficult and unsatisfactory because of the wide variation both in cell forms and arrangement, certain tumors closely resembling connective tissue new growths, while others so closely resemble epitheliomata that pathologists of wide experience differ as to the histological diagnosis.

The growth may assume a perivascular, or column-like formation, or resemble adenomatous alveoli, while other types present a diffuse growth without any definite arrangement.

Endothelioma can originate from any type of endothelium, but it is probable that the endothelium of lymph vessels and lymph spaces is the most common source.

This new growth extends by invading adjacent structures, or by widespread lym-

phatic metastases but is relatively less malignant than carcinoma or sarcoma.

CASE REPORT

E. T., male, white child, age two and a half years. Referred by Dr. A. A. Shelley on March 27, 1927.

History: Information was elicited from parents that the child had not breathed naturally since infancy. About six weeks previously he began to have some difficulty in swallowing solid food. Parents stated that patient might have ingested some preparation which contained lye.

Examination: Child was poorly developed and extremely undernourished. There was some cough with a moderate amount of dyspnea. The submaxillary glands on both sides were somewhat enlarged. Inspection of throat revealed a soft friable mass of tissue, occupying right tonsillar fossa. The same condition prevailed on the left side, but involved only the lower portion of tonsillar region. On account of the swelling of the tongue, especially toward the base, further inspection by the indirect method was not feasible. Parents were advised to return with child on the following morning in order that a more satisfactory examination might be made by the direct method.

These instructions were not followed. The child was not brought back until April 9th, when an endoscopic examination was made. All of the symptoms noted on first visit were then much intensified. There was a definite laryngeal stridor, and the little patient was barely able to swallow liquids.

Direct inspection with laryngoscopic tube showed an extensive mass of necrotic tissue at the base of tongue. This extended upwards and involved all of the right and the lower portion of the left tonsillar fossa, thus including the greater portion of Waldeyer's ring. In the right tonsillar region, the neoplasm assumed a sessile-like appearance and protruded downwards into the right pyriform sinus, encroaching upon the inter-arytenoid space. The hemorrhagic and friable character of the growth necessitated its removal in sections. The neoplasm appeared to be partly fibrous, but essentially of degenerative lymphoid structure.

Pressure of the tumor at the base of tongue resulted in impaired motility of the epiglottis. This condition, together with the partial obstruction of the esophageal opening, accounted for the difficulty in breathing and deglutition.

Pathological Report: The tissue specimen consists of several small rounded masses resembling lymphoid tissue. Microscopic sections show a new growth made up of rather large, faintly staining, atypical cells, arranged in small alveoli, with a slight amount of fibrous stroma. Vessels are quite abundant and in some instances show only the endothelial layer of the vessel wall. On one surface is shown a squamous epithelial layer, which is separated from the tumor cells by a fibro-vascular layer. The histological picture suggests a diagnosis of endothelioma, and doubtless malignant in character. (Mills).

Following operation the child showed some improvement in his general condition. His breathing became much easier, and he was able to swallow some solid food. On May 14th endoscopic examination showed no return of growth. Some tissue debris was observed in both tonsillar fossae and removed. There was a slight amount of scarring in the region of the arytenoids which extended to the right true cord. The epiglottis was of normal appearance. X-ray therapy was

advised, but the parents preferred to postpone same.

The patient disappeared from observation until July 9th. Examination at that time showed growth to have partially returned at the base of tongue. Tonsillar regions were not involved. There was an intense glossitis which increased the difficulty of respiration and swallowing. A diffuse enlargement was present in submaxillary regions with obliteration of glandular outline. On July 11th the dyspnea had become so aggravated as to necessitate a low tracheotomy. This was done under local anesthesia. Following tracheotomy the child showed marked improvement in his breathing.

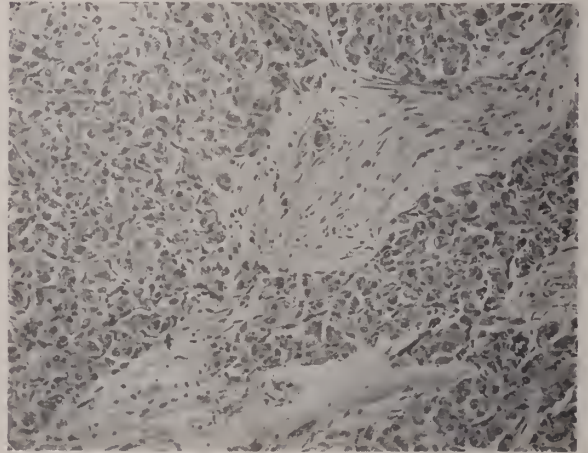


Fig. 1. Photomicrograph showing stroma and larger alveolar groups of cells separated by fibrous framework. Hematoxylin and eosin stain, magnification 500x. (Major Callender.)

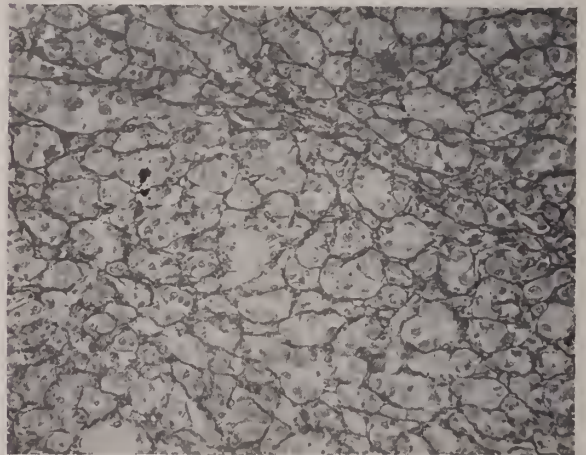


Fig. 2. Photomicrograph of section with silver impregnation of reticulum showing arrangements of cells in minute alveoli. Magnification same as Fig. 1. (Major Callender.)

Two days after admission to hospital some necrotic tissue, about half the size of a walnut, was removed endoscopically from the base of the tongue and the left pyriform sinus. This resulted in a recession of the glossitis and enabled the patient to swallow more easily.

The swelling in submaxillary regions diminished somewhat. The child's condition during stay in hospital, which lasted ten days, showed the ben-

eficial effects of careful nursing and improved hygienic surroundings.

Following his return home, the child's condition continued about the same until August 1st, when he became gradually worse. X-ray therapy had been instituted but later discontinued.

Examination on August 15th disclosed a few areas of new growth in both tonsillar regions. Patient expectorated foul-smelling pus mixed with blood. On August 26th there was an extension of growth at base of tongue. On account of previous tracheotomy child's breathing was not obstructed. However, there was great difficulty in swallowing even liquids. Section of tissue showed it to have undergone necrosis with degenerative changes that obliterated all cell outline. The growth had now completely invaded, probably by direct extension, the sublingual and submaxillary areas, resulting in extensive swelling. Adjacent regions of the neck had also become involved. Child died on September 11th. No autopsy could be obtained.

Sections and gross material were submitted to Major George R. Callender of the U. S. A. Medical Museum whose first opinion was that the tumor was epithelial in character, but after further study thought it should be classified as an endothelioma. However, he included the specimen in Registry of Lymphatic Tumors for circulation among other pathologists and obtained opinions, some considering it as epithelioma and others as endothelioma.

Two other pathologists of national reputation studied the slides, one declining to express an opinion, the other considering it as an endothelioma.

DISCUSSION

DR. CLARENCE E. IDE, Tucson, (opening). This example of a rare tumor presents unusual interest and Drs. McLoone and Mills deserve our gratitude for working it up and presenting it to us.

It has been stated repeatedly by medical writers that the mode of production of endothelioma is as yet undetermined. One meets this statement everywhere throughout the literature of the subject. Yet, as the doctors have stated the condition is believed to arise primarily in the endothelium of the lymph vessels, sometimes of the blood vessels, occasionally in the dura and such serous surfaces as the pleura. So great an authority as Ewing states, in discussing the origin of this class of tumors, that there are a few well worked out cases in the literature showing the origin of endothelioma in the lining of lymph vessels but that otherwise the case is not yet proven. At any rate this growth is said to be malignant in character and evidence of this will be seen in figures of mortality and recurrence. Entire removal of many of these growths is difficult because of their poor differentiation from their environment. Frequently high vascularity makes attempt at separation a very hemorrhagic procedure. An exception to this statement occurs in the case of the whorl cell endothelioma. These are essentially benign, encapsulated and grow slowly. Here we have a good operative risk.

Endotheliomas occur commonly as primary tumors of the lymph glands. In character of cell and mode of growth, many do not differ from endotheliomata arising from blood or lymph endothelium in other structures of the body. Ewing has pointed out that the virus of Hodgkin's disease may pass rapidly into a neoplastic process resembling a lymphosarcoma. This is a Hodgkin's endothelial sarcoma. He recognizes three types; a diffuse, a plexiform or perivascular, and an alveolar. The

growth is peculiar in that, with the exception of occasional visceral metastases, the spread is limited to lymphoid structures, in particular to the lymph glands. The cells show a lack of any marked invasive power. Oliver says that there is no sharp line between these endotheliomata and Hodgkin's disease or lymphosarcoma. Symptomatically these growths are not to be distinguished from those occurring in diseases of the Hodgkin's group.

Samuel Bradbury says that endothelioma of the lymph vessels spreads by way of the lymph channels, but is rarely as rapid in growth as carcinoma. In many cases, however, there is extension in the lymphatics far in advance of any visible sign of tumor, and for this reason endothelioma is noted for its persistent local recurrence.

F. Wise and H. J. Parkhurst state that endothelioma must be differentiated from chondroma, fibroma, osteoma, sarcoma and deep glandular carcinoma.

Endothelioma may be situated in any part of the mouth, the hard and soft palate being the site of predilection with the floor of the mouth as second choice. Oval, ordinarily smooth, and of varying consistency, the tumor may be so large as to interfere with oral functions, as in the case under discussion. They grow slowly, the yellowish overlying mucosa is thin and may ulcerate if injured. Diagnosis is difficult, both clinically and histologically.

Endotheliomata of the nasopharynx are hopeless from a surgical point of view. It is to be noted that results after radiation are very disappointing. This growth also occurs in the cranial cavity. Some of these brain tumors undergo cystic degeneration, being filled with a yellow, gelatinous fluid. Evacuation of this fluid renews the activity of the cells, indicating a malignant character. In endothelioma of the brain there is osseous thickening of the skull sometimes, resulting from irritation of the periosteum, when the growth is in contact with the bone. This bone is ivory-like in character and operations on it should be approached with caution because of the shock resulting.

Meningeal endothelioma occurs especially at the cerebello-pontine angle. These, according to Keen, are often called fibrosarcoma. This refers us back to the statement in the paper that the living cells of lymph and blood vessels and subdural spaces arise from mesodermal cells and are closely related to connective tissue. They do harm by pressure rather than by infiltration, hence disturbances of function as of the cranial nerves which are often surrounded by the growth, subside after their removal. Solitary or multiple endotheliomata of the spinal cord occur, but are less common than in the brain, according to Keen.

Mandelbaum and Celler described a tumor of the thymus gland occurring in a case of myasthenia gravis, as an endothelioma.

This tumor occurs in the thyroid gland, arising from the endothelium of the intralobular capillaries. It forms cell cords and nests with marked proliferation of connective tissue. (Keen).

Alfred Stengel and Richard A. Kern are authority for the statement that melanotic endotheliomata arising in pigmented moles of the skin often metastasize to the liver.

M. A. Blankenhorn says that 40 or 50 cases of malignant disease of the pleura have been reported by Norris and Landis, largely endotheliomas. The possibility of mistaking these for chronic inflammatory processes may account for the rarity of reported cases. However, Patterson reported 96 cases all fatal. He states that metastases occur in the pleura of the contralateral side, lung, liver, kidney, peritoneum, spleen, adrenals

heart, pericardium, brain and ovary. The patients survived only up to six months after diagnosis was made. This patient was first seen March 17, and died on Sept. 11, five and a half months.

Endothelioma of the pleura occurs as a diffuse thickening in the form of scattered nodules, sometimes associated with fluid, which, when present, is blood stained. The growth here is slow. The signs are those of pleural exudate. Sometimes there is temperature. (Keen). Richard Cabot says that leucocytosis is present as in a suppurative lesion, suggesting the necessity of care in studying obscure pleural lesions. When the growth is extensive the respiratory symptoms result from compression of the lung (Keen). It is stated emphatically that this tumor grows beyond relief before it is recognized. This undoubtedly explains Patterson's one hundred per cent mortality.

Endotheliomata in bone are often pulsatile and expansible, simulating aneurism. (Keen).

Schlessinger reported endothelioma of the rectum arising from the endothelium of dilated vessels of hemorrhoids.

MacCarty and McGrath diagnosed a tumor of the vermiform appendix as endothelioma instead of carcinoma because of the size and the lack of marked irregularity on the part of the nuclei of the cells of which the growth was composed, as well as the alveolar arrangement and staining qualities.

Attention has been called to the fact that raying is very disappointing in treating these growths; that endothelioma of the nasopharynx is hopeless from a surgical point of view; that removal from any site is difficult because of the poor differentiation of the tumor from its environment and high vascularity. As an obstructive lesion this one certainly demanded removal at the earliest possible moment. It would seem that removal by diathermy or electrocoagulation would offer more hope of a successful outcome than outright surgery as the hemorrhage would thus be controlled and recurrences less likely. I think that we have been on the wrong track in the investigation of the treatment of malignant growths. It is being acknowledged by all that the disease is not a bacterial or parasitic one. Many are losing faith in the knife as it does not give a large enough percentage of recoveries. There is another line of treatment being investigated which may give the sufferer from malignant growth more hope and may stay the increase of deaths from malignancy. This treatment is chemical. There are those who apparently report good results from detoxicating and chemical treatment and it behooves us all not to despise any who can deliver the goods in the way of cure.

I further believe, with plenty of capable and scientific men that a cancer is not a local disease but a local manifestation of a general toxicosis, closely related in many ways with psoriasis, ichthyosis, eczema and other so-called skin diseases which are nothing but the manifestation in the skin of an effort of the body to throw off toxins.

DR. M. C. COMER, Tucson: This work is of particular interest to me because I have seen so few case reports of proven endothelioma of Waldeyer's ring. I wish to compliment the authors on the way they have worked this case up and feel they have contributed something valuable to the literature of this subject.

DR. J. J. McLOONE, (closing) I wish to thank the gentlemen for their discussion. The point brought out by Dr. Ide with regard to treatment is certainly pertinent. This case was practically hopeless from the beginning. Keeping the child alive and not allowing him to choke to death

was the object of treatment. Undoubtedly electrocoagulation has its place in such cases, but if you could have seen the friable mass of this tumor which bled at the slightest touch, you would have hesitated to attack it. Even in the removal of a small portion for examination, it was absolutely necessary to watch the child carefully, because at one time he aspirated some of the growth and it had to be removed by the endoscope. These things were all thought of and in consultation with other men we thought the best thing was x-ray. The child did not come regularly for treatment, could not be held in position, and this treatment was not found practicable. The best we could do was the tracheotomy to prevent death from respiratory blocking, and removal of the growth which was against the esophagus so that the child could swallow and survive for a time. Life was prolonged and we felt that other treatment would not have saved the child's life.

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THE LIFE, GROWTH, AND REPRODUCTION OF BONE IN THEIR RELATION TO THE HEALING OF FRACTURES

W. L. BROWN, M. D., and C. P. BROWN, M. D.,
El Paso, Texas

The elements concerned in the life, growth and reproduction of bone are:

1. The periosteum.
2. The cortex.
3. The Medulla.
4. The blood supply.
5. The epiphyseal lines.

We have carried out various experiments to determine whether or not periosteum is within itself osteogenetic. We have elevated strips of periosteum, left them attached at one end and turned them into the tissues without, in any case, having produced any bone of consequence. We have also taken free transplants of periosteum and put them into the muscles and subcutaneous tissues with negative results. We have found experimentally also, that young bones completely deprived of their periosteum will have a new fibrous membrane apparently identical to the periosteum within thirty days, and the bone will grow and keep pace perfectly with its fellow on the opposite side.

One very interesting experiment in relation to the osteogenetic function of the periosteum was as follows: We did a sub-periosteal resection of over an inch of the ulna in both bones of the same dog. In one, nothing further was done. This bone was completely reproduced three months later. In the opposite side the ends of the bone were capped with tinfoil to prevent outpouring of osteoblasts. If the periosteum restored the bone on the opposite side it should have done so on this side. But, instead, there was no restoration except where the osteoblasts were poured out around the bone caps.

In numerous experiments on the ribs we have found that a rib will be completely restored if the periosteum is left; that it will be only partly reproduced if it is not left. This would at first thought indicate that the periosteum was reproducing the bone. But when we cap the ends of the bones these gaps are not filled in. The same thing has been found clinically where the shaft of a long bone has been completely destroyed by osteomyelitis in a child; the sequestrum having been removed, and the entire bone reproduced.

In the experimental cases of subperiosteal resection the bone was reproduced from the ends of the bone.

In the clinical osteomyelitis destruction of the shaft, early in the inflammation defensive osteoblasts are thrown out between the bone and periosteum, and when the line of demarkation occurs this subperiosteal shell of osteoblasts reproduces the shaft. We conclude then that the periosteum is not osteogenetic per se but that it is a necessary element in the reproduction of bone as a limiting and guiding structure for the newly produced bone.

To prove its power as limiting membrane it is only necessary to refer to the subperiosteal resections and especially the subperiosteal fractures as seen in practice. A subperiosteal or green-stick fracture has but little callus because of this limitation. The fracture with the completely ruptured periosteum may have an excessive callus because of lack of periosteal limitation. It also may be of importance in relation to fractures because of its presence between the ends of the bones preventing union, again demonstrating its limiting power over osteoblasts, or it may have much influence in the deformity produced where it is ruptured on one side and not on the other.

CORTEX

I think experimentation, as well as clinical observation, has very conclusively demonstrated that the cortex only reproduces bone. We wouldn't expect nerve to produce muscle, muscle to produce bone, nor tendons to produce blood vessels. In other words, like tissue produces like, so when we arrive at bone why not expect bone to reproduce bone according to the rule, for reproduction of other tissues?

We have demonstrated by numerous experiments in the resection of long bones, including the periosteal trough, that the only effort at reproduction is from the ends of the bones. We have also proved by numerous experiments that function is a necessity for its permanency.

We transplanted numerous pieces of long bones and ribs into the muscle and sub-

cutaneous tissues, and while occasionally they made an abortive effort at reproduction this was invariably followed by a deterioration and absorption, because these transplants did not contact with living bone, and consequently had no stress to meet or function to perform.

We transplanted the split femur of puppies onto the side of the mother's femur, and there would be union, but the transplant was soon absorbed, just as excessive callus would have been, because it had no function to perform.

The power of bone to form its masonry, and later alter its masonry in order to meet the stress and strain of function is very remarkable. This power is at its zenith in the growing bones. This is nowhere better demonstrated than in fractures of the long bones in children where there is only lateral contact, often mal-alignment, and yet the masonry of the bony repair will be such as to take care of the immediate demands of function, and will continue to change for years until the normal contour of the bone has been completely restored; thereby giving it back its normal weight-bearing lines.

An excess of callus will always be found to be the result of necessity brought about by nature's efforts to repair badly displaced and mobilized fragments with distorted weight-bearing lines.

THE MEDULLA

The medulla is essentially only a nutrient carrying structure. It is composed of a network formed for the purpose of carrying the internal blood supply of the bone. Its relation to the healing of fractures is so intimately associated with the circulation that they will be discussed together.

BLOOD SUPPLY

The long bones receive their blood supply from the nutrient arteries, the metaphyseal arteries and the periosteal system.

It has always been our belief that the nutrient artery was the most important blood supply to the diaphysis of the long bones.

Recent experiments of Johnson, of Johns-Hopkins, (*JOURNAL OF BONE AND JOINT SURGERY*, JANUARY, 1927) have shown that the nutrient vessels supply the medulla throughout, and the inner half or two-thirds of the cortex; that the periosteal blood supply only nourishes the outer one-third or one-half of the cortex and is unable to afford a collateral supply; that the metaphyseal vessels also supply the medulla and the inner half of the cortex, close to the ends of the bones.

Any interference with the circulation undoubtedly has an effect on the healing of fractures.

Recent experiments of Morton and Sta-

bins (ANNALS OF SURGERY, SEPTEMBER 1927) show that ligation of the saphenous vein in dogs, thereby obstructing the normal circulation of the blood in the limbs would almost invariably cause non-union.

Unfortunately the long bones, with the exception of the femur in childhood, only have one nutrient artery. It may then be seen that if this artery and vein are torn across close at their entrance to the bone there would be a great lack of blood supply to the distal fragment. Consequently the study of the point of entrance of the nutrient artery of the long bones gives us a clue as to why we have non-unions in certain locations of the individual bones; these locations corresponding very accurately with the entrance point of the nutrient artery.

THE EPIPHYSEAL LINES

Experiments from the time of John Hunter indicate that the growth in length of bones takes place entirely at the epiphyseal ends.

In addition to the numerous experiments that have been done to prove this, it need only be observed that if this epiphyseal line is destroyed in childhood by an inflammatory reaction, especially as occurs in smallpox osteomyelitis, the shaft of the bone ceases to grow in length. This has important bearing on fractures in young children, as some of the so-called fractures may be only epiphyseal dislocations, and these should, of course, be accurately reduced to prevent future deformity because of lack of growth in length of the bone.

The reactions of the above elements in their relation to the healing of fractures depends upon: First, the age of the patient; second, location of the fracture in relation to the nutrient artery and vein; third, the amount of trauma to bone and soft tissues; fourth, hematoma; fifth, accuracy of reduction and fixation; sixth, general diseases and dyscrasias.

The age of the person or animal receiving a fracture is so important in the healing of the fracture that we think one could almost make two classes of fractures, depending entirely upon the age. Much more can be taken for granted in dealing with fractures in children than with adults. Circulation in the bones is much better during the developmental stage, the embryonic cell reaction is much more prolific.

Reduction of fractures in children may be much less complete than those in adults and still get a much better ultimate result. The bone is only in its formative stage, and consequently more abnormal conditions may be cared for.

The location of the fracture in relation

to the nutrient artery, the amount of trauma to the bone and soft tissues have an enormous effect on the healing. Where the trauma to the bone is great and fragmentation abundant there will be much more outpouring of callus, as each individual piece of bone that remains viable will be an osseous center.

Hematoma, especially where there is much trauma during reduction, make a desirable pabulum for the dissemination and sustenance of osteoblasts. While this may be desirable in certain cases in the way of increasing the amount of callus it may be undesirable in causing too much callus if close to the joints, or ossified hematoma in the muscles which may have to be removed, or because of tension prevent the reduction of the fracture. Hematomas are especially pernicious in fractures of both bones of the forearm because of ossification and bridging between the radius and ulna.

The question of fixation of fractures is a much discussed subject, and one of relative importance. We, after observing the healing of bones in wild animals where there is no effort at reduction and fixation, and observing the great increase of callus where fixation is not complete, and occasionally the lack of callus and lack of union where fixation is absolute, believe that there may be such a thing as over-fixation.

DISCUSSION

DR. MEADE CLYNE, Tucson, (Opening):—This is a very wonderful presentation and we all owe a vote of thanks to Dr. Brown for coming and giving it to us. He spoke, in introduction, about our getting tired of hearing him talk about bones; we will never do that. It is apparent that the regeneration of the bone in the bony defect takes place from the endosteum of the marrow, and the defect is closed in by the splinting process by the periosteum.

DR. R. D. KENNEDY, Globe, Ariz.:—There has been a thought in my mind as I listened to this paper. Dr. Brown took a piece of bone from a puppy and transplanted it to a bone in a dog; the transplant disappeared and he gives as reason that it was because there was no function in the transplant. He transplants a rib into muscle tissue and the rib disappears, or periosteum into muscle and the periosteum disappears. I have been wondering whether that may not be from lack of function, just like the transplant from the tibia. That is just a question in my mind; I do not know the answer and would like to ask Dr. Brown's opinion as to what influence lack of function may have had in the disappearance of the periosteum. I do not remember the histological difference between the inner layer of the periosteum and the lining of the Haversian canals. If there is no difference and you strip the periosteum you have probably not removed all the periosteum, because some of it dips into the Haversian canal which may have the same structure histologically, and when you say periosteum has no osteogenic function, it may be because you have not removed all of it.

DR. D. F. HARBRIDGE, Phoenix:—The idea struck me, while listening to Dr. Brown and seeing last picture in which he showed certain definite bone changes after lapse of some time, that it may have

medico-legal significance. There are few things that will impress a jury more than a monstrosity in the form of a picture of a fracture. If the picture is taken early, instead of later when the results are better, it might be wise to impress on the jury that the appearance shortly after a fracture heals is rather crude, and that time will cause much of this roughness to disappear.

DR. H. T. BAILEY, Phoenix:—Would like for Dr. Brown to clear up this question: in Cincinnati, Indianapolis and other places, in doing submucous operations in the nose, we see the septum left very flaccid, nothing in there except the two layers of mucous membrane. Undoubtedly these operators leave the periosteum in, and with bone above and bone below why will not new bone form. Down here most of us leave in a piece of cartilaginous tissue which helps strengthen and stiffen the septum; we do not wait for it to grow back.

DR. GEORGE A. BRIDGE, Bisbee:—I hardly feel competent to discuss this paper, though we treat a large number of fractures. I have been much interested in Dr. Brown's researches on the bone functions of the periosteum. My opinion right along has been in line with his conclusions, even before his experiments, as I have read some of his papers before. I agree perfectly with him on that point. There are two thoughts particularly in relation to this paper; one of them is the matter of the circulation. I have had to handle many fractures during the past ten years and have had some very slow unions, and it has always been a question whether it was a disturbance of the circulation, or some other factor I did not know about. Very probably it was usually a profound disturbance of the circulation making the delayed union. We should be careful of two things in handling fractures, keeping in mind the points brought out by Dr. Brown. One is that fractures that cannot be satisfactorily reduced by the closed method, should not be allowed to go too long before the open method is used. I have had personal experience with that error, to my sorrow, trying all sorts of apparatus in effort to bring the broken fragments into position and getting nowhere, with final open reduction. That is a mistake, and these fractures should be immediately reduced on the basis of the principles brought out by Dr. Brown. This practice of immediate reduction is much better because the fragments are brought into position and scar tissues not allowed to form over the ends, resulting in more rapid union. Another point is that you should have patience when you have brought the fragments into position and do not despair because you do not get union in a few weeks. I recently had two badly fractured jaws from the same accident; the fragments were badly comminuted, with infection from outside and inside, many tooth fragments removed. After six months there was little union, but after nine months there was very good union, even though there was large destruction of tissue; it did not seem that they could grow together without operation, but they did. Have had the same experience with a fractured femur which came to open operation; after three months there was little union, but after five months perfect union. One must have patience in the treatment of these fractures. Am sure that we are all much indebted to Dr. Brown for his work on bone, and for this paper.

DR. C. A. THOMAS, Tucson:—Would like to emphasize, or draw attention again, to the difference in the treatment of fractures at different ages. That is a very important point which Dr. Brown brought out. Also we must remember the bearing the hematoma may have on the ultimate outcome of certain fractures, where it exerts a pressure which may prevent healing in cases which would otherwise get along well.

DR. J. I. BUTLER, Tucson:—I do not think Dr. Brown means to leave the impression that the periosteum should be disregarded in bone work. I remember a large number of people who came back from France with delayed closure of wounds. Dr. Brown's statements about bone nutrition explain many of those, which were mysteries to me. The periosteum had been stripped perhaps half an inch beyond the amputation, and there would be a perfect ring sequestrum thrown off before healing could take place. The periosteum cannot be ignored and stripped back with impunity and the bone left denuded, because this thin layer of bone whose nutrition is supplied by the periosteum is liable to undergo necrosis.

DR. VICTOR GORE, Tucson:—Would like to ask Dr. Brown a question which he may have covered. Is the amount of, and rapidity of formation of, callus dependent upon the completeness of the reduction? Another question; in cases of generalized arthritis with calcium absorption, what effect, if any, does the constitutional disturbance have on the rapidity of the repair of fractures?

DR. W. L. BROWN, El Paso, (Closing):—Dr. Kennedy, I did not understand your question.

Dr. Kennedy:—Where you accounted for the disappearance of the bone graft in the tibia because of lack of function and you deny the periosteum any osteogenetic power when transplanted into soft tissue. Would not lack of function be the cause here, the same as in the graft?

Dr. Brown:—That would be hard to get at. The osteogenetic function of the periosteum depends on whether the experiments are done on young bones and how the periosteum is raised. Raised with a sharp instrument, you would have a certain amount of reproduction because osteoblasts are transplanted with it. Williams' experiments in 1913 and '14 indicate that the periosteum would reproduce bone, but those animals were not allowed to live more than four or five months, which is not long enough. We contend that for a transplant to be permanent it must live as long as the host; otherwise, it is not permanent.

Medico-legal aspects are very important. Many of us have been guilty of considering the x-ray appearances instead of the fracture itself. I remember one instance in consultation with my friend, Dr. Crouse. I was called to his office one day and found him in a wild fury at himself, because he had just taken a fractured arm out of dressings, and here was the x-ray! He said it made him feel like quit practicing medicine. I told him to look at the arm and forget the x-ray; he had a most excellent functional result for a limb just out of splints; so I said to forget the x-ray and forget that he must judge by it. Dr. Harbridge says the situation is that many doctors and lawyers have learned to look at the x-ray as the last word. In some of these fractures shown here, I would be ashamed to show anyone the x-ray. If we will look at the limb and the functional result and pay less attention to the x-ray, we will have less trouble legally. I do not recall any case in El Paso where the x-ray has been offered in evidence; we have practically ruled it out.

With regard to the circulation. Recently I did one of the most inexcusable things in the treatment of fractures; it raised a commotion among the hospital staff. Had the temerity to put a Lane splint on a compound fracture of the tibia in the presence of a gas bacillus infection. Situation was this; wound wide open, bones in sight, distal fragment bearing down on the posterior tibial artery, foot badly discolored, so why not? This is, of course, just one of those exceptional cases, but is cited to illustrate the importance of guarding the circulation in treating fractures. The man in charge of this patient says there is no doubt it saved the leg

and that in twenty-four hours the foot looked entirely different.

I do not think we have fully realized the part played by hemorrhage in the reduction of fractures. No doubt, hemorrhage has a great deal to do with preventing reduction of fractures, in reproducing the deformity. The hematoma is under the fascial layers, becomes tense and no doubt acts as a fulcrum in displacing fragments.

With regard to resection of the nasal septum, I do not know how to answer that. Septum is partly cartilage, which is very different because that does not produce bone.

THE ARIZONA INDUSTRIAL COMMISSION AND THE MEDICAL PROFESSION

At a regular meeting of the Maricopa County Medical Society, on May 7th, attention was called to an action by the Industrial Commission which appeared to many of the doctors present to merit criticism. This was their announcement that certain employers insured by them had been instructed to refer all injured workmen to their medical advisor, who would direct them to the proper surgeon for treatment. The order affected the city of Phoenix, the county of Maricopa, the State Highway Department, and two other employers of Phoenix.

Motion was introduced that the Maricopa County Society take steps to initiate a recall petition of the Compensation Act, and appropriate one thousand dollars for this purpose. After some discussion, this motion was laid on the table until a special meeting of the Society, with a more representative attendance could be secured. This meeting was called for May 9th, at which time motion was made and carried that the Committee on Public Policy of the Society be asked to confer with the Industrial Commission and ascertain the reason for this action and the extent of their proposed orders. At a second meeting of the Society, held on May 12th, this committee (composed of Drs. Brockway, Bakes and O. H. Brown) reported and presented a letter from the Commission as their report. This letter was as follows

"Pursuant to your request we are submitting a statement of the matter concerning which your committee conferred with this Commission yesterday.

"The Industrial Commission was organized by statute some two years ago, not only for the purpose of determining compensation due and payable to injured workmen, but also for the purpose of conducting and managing the operations of a compensation insurance fund provided for in said legislation.

"The Arizona State Fund ranks today fifth or sixth in size of competitive state funds in the United States, and while said fund was started with a loan by the State of \$100,000.00, said \$100,000.00 is today wholly intact. The State Fund is the largest underwriter of compensation insurance in Arizona, and the conduct of same may not be con-

trolled by political expediency. The intent of the compensation law is that the State Fund shall be entirely self-supporting. We have made it so. All money paid by us for compensation and for hospital and medical charges is derived from the premiums paid to us for such insurance by the employers of labor in Arizona, and not in any wise from general appropriation.

"The Commission's actions may not be determined entirely from one point of view. It is our desire to co-operate with and to receive the full co-operation of the medical fraternity. Their viewpoint, however, may not properly be entirely the controlling one. Our responsibility extends both to the injured employee and to the employer who has taken his insurance with the State Fund. An appreciation by yourselves of these various controlling factors as regards our actions is the thing we ask in this connection.

"Pursuant to the above considerations and after observing the operations of the Compensation Law during the past two years, the Commission decided to establish an impartial system of referring injured employees for treatment.

We have observed numerous cases wherein disastrous results occurred due to an unfortunate choice of treatment made by the employee. The practical result in these cases is that a man will go through life maimed, without reason, and that the State Fund has paid and is paying for such disability, without reason. Such results could not have occurred under the system now proposed.

"The Commission felt that the best interests of all parties would be served if the attending physician in each case were selected on the basis of especial fitness to treat the particular type of injury sustained. The Commission has entrusted this selection to Dr. A. C. Kingsley, its Medical Examiner.

"Dr. Kingsley has retained the services of a registered nurse and both Dr. Kingsley and the nurse are employees of this Commission, receiving for their services fixed monthly salaries.

"A secondary reason for this plan of procedure is the absolute necessity, both from the viewpoint of the injured and from the viewpoint of the State Fund, that the Commission be in touch at all times with the cases of injury for which it is responsible.

"The Commission has notified several of the employers in Maricopa County whom it insures, including the Arizona Highway Department, the County of Maricopa and the City of Phoenix, to send all cases requiring medical treatment to Dr. Kingsley.

"Dr. Kingsley will himself provide treatment in cases of minor injury and will supervise the selection of the doctors in the other cases. In the discharge of this function he will be guided by two considerations only, to-wit, the selection in each case of a doctor especially fitted to treat the particular injury, and, secondly, to distribute the work in a strictly equitable and democratic manner among doctors equally suited and willing to do the work.

"A considerable portion of Dr. Kingsley's time will as has been the case in the past, be required for the examination and study of individual cases in which a medical question is involved, and upon the determination of which depends the amount of compensation payable to the employee by the Commission or by another insurance company. A considerable portion of his time will be required for the supervision of cases and consultation. We have authorized him to render such treatment of the injured employees as can be done without interfering with his other duties.

"The reasons applicable to the employment of Dr. Kingsley in Maricopa County might be con-

sidered as obtaining equally in other sections of the state. However, as provided by the compensation law, most large employers of labor furnish their own medical and hospital treatment, and Phoenix remains the only large industrial community where such is not the case. In this connection it might be well to cite the fact that many injured employees from all parts of Arizona are now being brought to Phoenix for treatment; and where in the past the large employers of labor have frequently seen fit to send their employees to El Paso for special treatment, they, at the request of the Commission, are now in practically every instance sending these men to Phoenix for such treatment.

"The confidence which the Commission has in the medical profession as a whole may be very definitely shown by the fact that in the handling of some twenty-five or thirty thousand cases of industrial accidents there have probably not occurred half a dozen cases where the Commission has ordered a change in the attending surgeons. We appreciate that there have been some cases of abuse of this confidence and some cases where better results would undoubtedly have been obtained under other arrangements or a closer supervision by our own medical adviser. These considerations may not be lightly passed over merely because we might feel that our stewardship in these connections would not be too closely questioned or analyzed.

"We assure the doctors that they need have no alarm over the plans of the Commission. It is not our desire to create, either directly or indirectly, a monopoly of medical treatment.

"As you know, there has been much misrepresentation and rumor relative to our plans, originating in the mouths of those who have no interest in intelligent, impartial selection of the attending physician, but whose interest may be in perpetuating their own monopoly, or whose interest may be political. Their criticism is incongruous, to say the least.

"We realize that no policy can endure unless it be sound and democratic. To insinuate or charge that we propose to create a monopoly of medical treatment implies an ignorance on our part of the fundamental principles which should govern the conduct of a public officer. It is not to be assumed that we are so short-sighted as to believe that the public would approve of any arrangement whereby the treatment of our cases would be concentrated in the hands of a select few. This Commission has enjoyed the most cordial relations with almost the entire membership of the medical fraternity in Arizona. From them we have received in general splendid co-operation. This has been of inestimable value to the Commission in the proper administration of the law. We appreciate it. We desire to retain it. And the change we are now proposing will, we believe, distribute the treatment of industrial injuries over a broader field. We hope thereby to strengthen the bonds between ourselves and the medical fraternity."

After considerable discussion, the following motion was made and prevailed:-

"That, instead of circulating a referendum, the whole subject matter be referred to the Committee on Public Policy and Legislation of the County Society in conjunction with the Committee on Public Welfare of the State Association, and that these two committees jointly take up the subject in point for discussion with the Commission, taking proper steps to urge remedying the law, if necessary."

This joint committee met on May 16th, and then met in conference with the In-

dustrial Commission. While their report was still being formulated, another special meeting of the Maricopa County Medical Society was called on June 9th (by request of five members as provided by constitution). Although the report was not complete, it was presented in the following form by Dr. Watkins, the only member of the Committee on Public Welfare of the State Association who was present:-

The joint committees from the Maricopa County Medical Society, and the Arizona State Medical Association, to whom was referred the questions raised by the action of the Arizona Industrial Commission in designating one doctor in Phoenix to care for the injured employees of certain employers insured by the Commission, wish to make the following preliminary report:-

The joint committees met in Phoenix on May 16th, with Drs. Stroud, Randolph, Brown, Bakes and Felch from the Maricopa Medical Society and Drs. Gunter, Carlson, Harbridge and Watkins from the Arizona State Medical Association. After discussing various angles of the question, the joint committee sought conference with the Industrial Commission with two questions in mind, namely:-

FIRST:- Does the Commission have the legal right under the Compensation Act, to direct employers for whom said Commission acts as insurer to send their injured employees to specified doctor or doctors and to refuse liability in case this direction is not complied with?

SECOND:- In case they do have this legal right under this Act, is our joint committee satisfied that they are acting justly and fairly with the medical profession in taking this action in the known cases where they have so acted, and in claiming the right to act in other cases should they see the need?

Further, if this is the law, does the committee recommend any steps to change the law?

In considering these questions, it must be taken in mind that there are three groups of employees working under our Compensation Act.

(1) The large industrial corporations who have their own hospitals or hospital staffs and carry their own insurance.

(2) The smaller corporations or employers who insure their employees with private insurance companies.

(3) The employers, large or small, who insure with the Industrial Commission. For this latter group the Commission functions in a dual capacity. In the one place, they have the same function as any insurance company, with the same right of medical supervision over injured workmen insured by them; in the second place, they function as an Industrial Commission to determine the amount of disability and amount of compensation to be paid. These two functions must not be confused when considering the legality or justice of the Commission's actions.

With regard to the first question, the joint committee sought the opinion of Mr. Holton, of the firm of Sloan, Holton McKesson & Scott, the attorneys for the State Association. Mr. Holton's belief is that the Commission does not have the legal right, under the Compensation Act, to direct employees to a designated surgeon for treatment. However, Mr. Holton sat with us in the conference with the Commission, and will give us a more deliberate and judicial statement of his opinion on this point. The Committee also heard from Mr. Taheny, the attorney of the Commission, the statement of their legal basis for their actions. Mr. Taheny's opinion is that the Commission is within

its legal rights in this matter, basing his opinion on that section of the Compensation Act which specifies that the employer shall furnish medical aid to the injured employee. He admits that the Act does not positively state that the employee must accept the surgeon selected or designated by the Commission, but he holds that this is the intent of the Act. That if the employer is held responsible for the surgical treatment and for the disability resulting from accident, he must also have control over the surgical treatment administered. He states that this same law, copied by Arizona from similar laws in other states, has been held by several Supreme Court decisions, to confer this right on the employer. The Commission, when it functions as insurer, takes over this right and acts as the agent of the employer; it is, therefore, entitled to name the surgeon who shall care for the injured employees of any concern insured by the Commission. Mr. Taheny will furnish us with a more detailed analysis of the legal decisions on this point.

With regard to the second question, as to whether the Commission has acted justly and fairly with the medical profession in carrying out this policy. Mr. Clingan, speaking for the Commission, stated that they are actuated solely by desire to see that the injured employees insured by them shall receive the best and most skilful surgical care and shall be returned to work with the least possible disability. While they have some interest in the insurance rate which mounts with the cost of medical care and length of disability, this is not their prime motive in directing certain employers to send their injured workmen to specified doctors.

Comparison was drawn with respect to the three groups of employers. In the large industrial towns of the state, where the mining corporations have hospitals, they have a direct interest in seeing that their employees receive the most skilful surgical attention. There is nothing the Commission desires to do, in such cases, except to encourage the employers to continue this type of care of their employees. The same thing holds true of certain corporations who do not have their own hospitals, but who designate certain surgeons to care for their employees; the Commission has no intention to interfere with such arrangements. The concerns who are insured with private insurance companies are also outside the scope of this conference.

However, the political subdivisions and in respect to certain employers, the injured employees are left pretty much to their own choice, or to the suggestions of friends or even disinterested bystanders, as to the doctor to be called when an accident occurs. It is in such cases as these that the Commission has directed that the injured employees shall be directed through Dr. Kingsley's office, in order that they may receive the proper attention without loss of valuable time. This is not with the idea that Dr. Kingsley will treat these patients, except in case of minor injuries, but in order that competent and skilful surgical attention may be secured without delay. A recent example in which a workman with a fractured back, following his own initiative, selected a chiropractor and was treated by him for a week before the Commission learned of it, and had him placed in the hands of a competent surgeon, was given as illustration of the need for such action by the Commission.

The Commission stated that they have no intention of issuing general orders to all employers insured with them, but do state that they reserve the right, under their interpretation of the law, to make changes in doctors whenever in their judgment the welfare of the injured workman is con-

served by such change. They do not contemplate extending their action, at this time, beyond the scope already indicated, which includes the state highway department, the county of Maricopa, the city of Phoenix and two other employers in this county. They will not tie their hands however, by stating that they will never extend such action, should it develop in certain instances that the welfare of the workmen demand this.

Your joint committee is not, at this time, able to make a final report, as they do not feel that their work has been finished.

With regard to the first question, we are securing studied opinions from the attorneys of the Commission and State Medical Association, and will give these careful study.

With regard to the second question, the Committee cannot see where any injustice has been done to any surgeon, whether the action is entirely legal or not. The explanation of the Commission appears to us reasonable. However, the joint committee will keep an open mind on this point and invite the criticism or statement of any doctor who feels that this action is unjust to him or to the medical profession. We ask for written statements for our further consideration.

With regard to the action to be taken, we do not approve of any hasty action. There will be abundance of time to consider remedying the Compensation Act by legislative amendment. We believe it would be most unwise and foolish for any doctor in the state to lend his influence to an attack on the Compensation Act by referendum.

We believe the Industrial Commission is attempting to act fairly, justly and honestly with the medical profession, and we call upon the profession of the state to deal with them in the same spirit.

Dr. H. J. Felch presented a minority report from two members of the County Society as follows:

MINORITY REPORT OF COMMITTEE

"The County Committee consisting of Drs. O. H. Brown, chairman, and Drs. E. C. Bakes and Harry Felch, with the President and Secretary met in a preliminary conference at the Arizona Club, May 23rd, 1928.

"The members of the State Committee on Public Welfare were also present. Dr. W. W. Watkins of Phoenix, Dr. Gunter of Globe and Dr. Carlson, president of the State Medical Association. Dr. Harbridge, secretary of the State Medical association and Mr. Holton, attorney of the State Medical association were also present.

"After considerable discussion it was found that \$1,000 would not go very far towards making a change in the law whereby the Arizona Industrial Commission could be abolished by a referendum. Dr. Gunter gave an opinion that \$25,000 would be necessary to complete the job. The out-of-town doctors were not in sympathy with our problem, for the reason that the mining companies in general carry their own insurance and the problem is not theirs. Dr. Gunter thought that the Maricopa County Society wanted to go off half-cocked to try to make such a fight, and was in accord that the commission could do what they pleased with the medical cases for which they paid the bills. He personally thought it was good business for the Commission to do so, not only from the standpoint of the state, county and city, but from all insurance under the Commission. After a few more tilts Dr. Watkins asked Mr. Holton to give

his opinion as to the authority granted the Commission under the law to compel the state, county, and city to send injured men to a physician of their choosing. His opinion was that the Commission could not legally do so, and that it could not be interpreted any other way, unless the Commission knew some way to get around the thing that he was unaware of. Dr. Gunter asked some questions relative to the wording of the law and the power of the Commission, after which the committee adjourned to the Capitol to meet with the Commission.

"As chairman of the state committee, Dr. Gunter was asked to act for the doctors. He stated that he was not the one to bring the question up because of his position on the point, but that he would do his best to represent us. He said he believed that we contended that the Commission exceeded their authority in making it mandatory for state highway, county and city employees, injured during their work, to report to Dr. Kingsley.

"Mr. Clingan, speaking for the Commission, said that they had given long study to the question, that they believed it legal, and were it not legal, he thought the medical profession would still stand behind the Commission if they knew the facts, and that they thought only of the unfortunate injured;—that certain evils had come up which they intended to correct, that certain members of the profession through lack of skill added to the expense of treatment for that particular case instead of referring it elsewhere, and that men went out into the world crippled beyond repair because of this unskillful care; that in a few instances the commission was mulcted maliciously for large amounts under false claims of injury, and at least in one instance one man was crippled by an operation not necessary from the standpoint of an accident case for which the Commission was responsible.

"On further questioning Mr. Clingan stated that it was not the intention of the Commission to go further at present, that two other employers, besides the three mentioned, had been notified of the fact of referring injuries to their man, that the Commission could NOT promise that it would not be extended further because they could not afford to tie their hands when injured men were not being handled correctly. He based his argument on the fact that at present all of the employees in question had to more or less find their way to a doctor of their own accord; that one case, a broken back, found his way to a chiro who promptly manipulated his back so that he will be a cripple for life, when he could easily have had no evil result. Further, ordinarily, other employers are more or less a family and that a workman's injuries were a big thing to the ordinary employer, that he saw that the man had a good surgeon, that he often had a surgeon employed to whom these cases were referred and took a lively interest in the fact that he got well promptly and without loss of limb. For this reason the Commission did not feel that the necessity had arisen where the order should be made general to all of the cases under their control, but could not tell us that the order would not be forthcoming. The committee gathered that as long as men were being adequately treated the Commission was disposed to let the order cover only those cases which are being cared for now.

"As to the legality of their action, Mr. Taheny explained that they were confident of their stand and quoted the intent of the law, and that while the power was not specifically granted the intent of the law was that they were responsible for the

welfare of the injured man. He cited a lot of primitive Blackstone palpably irrelevant to a layman to this specific case but determining intent of the law. Mr. Holton asked if there were any parallel cases to this in any state where decisions were made covering this specific point, and Mr. Taheny quoted from a newspaper that same article as to the inadequacy of treatment he had read when a guest of the County Medical Society. He finally admitted that no such point had been decided.

"Dr. Gunter asked that a test case be made of the next case that presented to decide the point, when Mr. Clingan made a plea that it be deferred until after the election of Nov. 8th, for otherwise it would be made a matter of politics during the election, a thing the Commission wished to avoid as they were now free, as free as public servants could be, from politics.

"Mr. Clingan told us that the medical profession was the Commission's best friends, that the workman who was injured was his real point, that the added expense to the Commission was a minor point, but withal a serious one. The Commission earnestly desired to let us know that its purpose was altruistic, that Dr. Kingsley was, so far as he knew, as capable to decide who was the best physician to treat cases, as he himself did not do surgery, that he had no prejudice, and was a man of honor and capable of discharging his duties in a fair manner. Dr. Gunter told the Commission that he had heard nothing but good spoken of Dr. Kingsley during our session, but that any man in the same position would be under suspicion.

"It was brought out that if the Commission had suffered from either maliciousness or from lack of care in specific cases, it would be derelict in its duty should it not instruct Dr. Kingsley as to who was 'gypping' the Commission. The Commission hesitated to reply, but admitted the truth of the statement. This will amount to a variable 'black-ball' unless the Commission, either this one or some other, is disposed to be very fair.

"In conclusion, Mr. Clingan said that we were being made the catspaw of politicians in taking the initiative for a referendum on the act creating the Commission."

Motion was made and prevailed, that the Maricopa County Medical Society adopt the report read by Dr. Watkins as the preliminary report of the joint committees, and that they be instructed to continue their action with regard to adjustment of the situation between the Industrial Commission and the physicians in Arizona.

It will be noted from the preliminary report read and adopted by the Maricopa County Medical Society, that this joint committee is desirous of receiving WRITTEN criticisms of the action taken by the Industrial Commission, so far as it affects the medical profession. These will be given due consideration by the committee in making their final recommendations on this matter. Address such communications to Dr. Clarence Gunter, Chairman, Globe, Ariz.

OPEN FORUM IN DIAGNOSIS

In the May issue of this journal, two case histories were published with invitation to county societies and other groups of physicians in Arizona and New Mexico to suggest diagnoses, with such discussions as they might see fit to submit. Beginning in the fall, it is expected that one or more cases will be published each month, with the discussions on diagnosis a month or two later. For the two cases published in May, we have received discussions from Yavapai County Society and from the Staff of St. Joseph's Hospital, Phoenix. Below we publish these, together with the discussions of Dr. Cabot on the same cases.

CASE NO. 1.

(From May issue of this journal, page 219 being Case 13201, of the Case Records of the Massachusetts General Hospital, published in Boston M. & S. Jour., for May 19, 1927, page 822.)

Discussion by Dr. R. J. Stroud, Tempe, Ariz.

(General Diagnosis, before the Staff of St. Joseph's Hospital, at special meeting on June 11, 1928).

Looking at this case broadly, the main factors involved in arriving at a diagnosis are:

(a) A young man, working in an industry where chemicals are used;

(b) A large sloughing necrotic mass in the mouth;

(c) A blood picture of some form of anemia, pointing more to a secondary type, but with color index at times above 1.

The history is negative, venereal is denied, the presence of an undescended testicle is noted. Wassermann is negative, Vincent's organisms are found in the slough of the mouth and in the stools, the urine is negative to repeated tests, icteric index 5, NPN 29 grams. The patient is pale and in poor physical condition. The blood shows great changes in amount of Hbg, red cells and white cells with degenerations of various kinds in the red cells, with Isaac's granules, and a constantly changing picture in the white differential counts, with immature forms, high mononuclear and low polynuclear counts. Urinary function tests show 50 per cent excretion, type of test not mentioned. Stomach has no free HCl and an index of only 5 in combined forms. Reflexes are increased, with ankle clonus constant. Clotting time, 20 mins.

The changes of blood pictures and their significance will be discussed by Dr. Milloy, so this discussion will be as to the general diagnostic factors represented by the above facts, and the blood finding discussed only as it relates to these things generally.

The palor of the patient is noted, but anemia and pallor are not synonymous. In general, the pallor of secondary anemia is greater than the blood picture warrants. Also, secondary anemias may carry at times a color index at one or above, and free HCl may be absent in secondary anemias.

There was no blood in the stomach contents or the stools, although there was gastro-intestinal pain, especially at night, relieved by enemata.

Temperature, pulse and respiration were as erratic and changeable as was the blood picture. No growth on blood culture.

The condition was generally progressive with short intermissions, and the spleen became manifest after he had been sick almost three months, and then just one month before death.

We have a history beginning only three weeks before and no data on his physical condition or blood findings, nothing to indicate what was wrong

until pus was noticed at the gum line of the molars, probably lower right side. No mention is made of blue line of gums, wrist drop or whether mercurials had been taken, or drugs, before admission.

The main things which should be considered are: septicemia, pernicious anemia, syphilis, Vincent's angina and metallic or benzol poisoning. Purpura hemorrhagica has to be excluded. Septic endocarditis is a possible diagnosis.

Septicemia: The history is not suggestive, but the blood picture can be that of any toxin circulating in the blood, whether chemical or bacterial. The remissions of temperature, together with a known source of infection, even though only Vincent's organisms were found, point to a septic process more or less governed by the amount of absorption. It is stated that a streptococcus is always present as a deep infection below a Vincent's infection. Lack of resistance to the organism would account for the low leucocyte count as well as the lack of polys. Changes in temperature and pulse rates could be accounted for by a septic infection from a nonhemolytic streptococcus. The broadened heart with a systolic murmur can be compatible with toxic substances entering the heart muscle. Against the diagnosis is the long-continued illness, the gangrenous odor, the type of lesion, the particular type of red and white blood changes and the lack of finding the organism on culture. The picture is not typical, and if septicemia was present it was a secondary thing.

Pernicious Anemia: Many factors enter into the exclusion of this disease. Among the diagnostic points here are the fact of a high color index, lack of free HCl in the stomach, constant progressive anemia in spite of transfusion and the addition of HCl, stomach cramps, remissions, and the fact that a Vincent's organism, usually present in the mouth, became virulent, sore mouth, especially the edges of the tongue being one of the diagnostic signs of pernicious anemia. Fever is often present in pernicious anemia with periods of normal temperature. Certain it is that the blood picture could be only pernicious anemia when the primary anemias are considered. Ankle clonus is consistent with the disease, as also are the increased reflexes. Blasts are always present in pernicious anemia and are one per cent in this case. Lymphocytes are relatively increased as in pernicious anemia, perhaps absolutely here. Against pernicious anemia per se is the fact of a large gangrenous slough, the age of the patient, lack of history of diarrhea and constipation with the attacks. The face was pale and pallor rather than yellowish color is not descriptive of pernicious anemia. The course was too stormy and the fatal ending took place too soon for a straight case. In spite of this, a pernicious anemia with a superimposed Vincent's angina is very hard to rule out, although Isaac's granules would seem to be out of place with the picture.

Syphilis. Syphilis can simulate all diseases and conditions and to have exhausted this disease and

its possibilities is to have gone through the calendar of medicine. Against the negative history is the fact of a latent acquired or hereditary type suddenly showing up without positive Wassermann. Nothing is said of mercurials being taken. The fact of being helped by neodiarsenol in part of the course of the disease, together with the finding of suggestive treponema, make syphilis a big possibility, and there is always the fact of a superimposed Vincent's angina on any other process, as a great percentage of people carry these organisms. However, the patient did not show any stigmata of hereditary syphilis, and a tertiary lesion would hardly have been as virulent. He would have developed some immunity to the disease and his arsenicals would certainly have helped unless he was arsenic sensitive, a fact not borne out by the history of the case, for the only improvements noted was following neodiarsenol, but not sufficient to do more than give a small measure of relief. Also against the diagnosis of syphilis is the fact of lack of enlarged glands of the drainage region. The blood does not parallel the usual one of syphilis, although any secondary blood change may be part of the disease. High mononuclear count is not a part of syphilis and the high color index is not usual with the toxins from this condition. The usual attack of syphilis on the spleen sufficient to enlarge this organ, generally has a counterpart in the liver, which is not borne out here either in size or in the icteric index. Usually, HCl is increased when a stomach is syphilitic, and ulcer can usually be demonstrated by x-ray methods, neither of which have been demonstrated here. The bowing of the shins points to a latent syphilis, but the thickening of the bone is not demonstrable by x-ray. The skull x-ray is also negative, ruling out bone syphilis here as well as Pager's disease. Ankle clonus is not often present in syphilis although early tertiary syphilis would be consistent with increased reflexes. The peculiar lethargy of the case beginning late in February, would be consistent with a gumma of the brain, and the whole train of events, with the fetid breath beginning the process and ending with a veritable noma, could clinically follow an untreated syphilis in the tertiary stage. The blood pictures, negative Wassermann, lack of finding definite treponema and the changes taking place without all of the organs being greatly affected, rules out syphilis if this disease can ever be ruled out.

Vincent's Angina: Whatever the diagnosis, this is the hardest disease to positively rule out of the picture. First, we have the positive finding of the Vincent's organism, both in the mouth and the stool. The blood picture can be that of an anemia peculiar to the disease. Whatever the exciting cause, Vincent's angina can be added to the picture in the matter of a progressive fatal disease, especially when localized in the intestine, and sufficient absorption could have come from the mouth alone to have killed the patient. The helping of the patient temporarily by the use of arsenicals is also a factor in clinching the diagnosis. The fact of the spread into the antrum and the ear is characteristic of Vincent's disease. The fact that other organs, even the kidneys, being negative, strongly supports the diagnosis. The long clotting time, while more suggestive of a purpura, can be accounted for by any toxin which purpura, can be accounted for by any toxin which would act on the coagulant forces in the blood, for purpura itself is caused by toxins when not of the idiopathic variety. Against the diagnosis is the fact of so many blood changes, a lack of constant progression in so fatal a case, Isaac's granules which are generally due to chemical irritants as opposed to bacterial toxins. Vincent's may be

only a secondary disease in the light of other toxic irritants.

Metallic poisoning: In this industry certain irritant poisons could make the picture seen here. Lead or arsenic, or both, could be factors. The fact of a Vincent's angina following the toxic poisoning is compatible with the findings, for Vincent's is especially liable to take place with an overdose of the heavy metals, especially mercury, lead and arsenic. The blood picture can be that of a long-continued arsenic or lead abuse. Lead especially makes a peculiar secondary anemia which gives a changing picture of blood under the microscope; the clotting time is disturbed, Isaac's granules are part of the picture of heavy metal abuse more than bacteria, and the whole picture of anemia, slough, stomach pains, changes of reflexes and weakness and pallor can be said to more nearly simulate the heavy metal type of picture than either of the other conditions mentioned. Combining this with a Vincent's organism would account for all of the things that have taken place. Against this is no history of blue line on the gums, lack of knowledge of taking mercury or being in the factory long enough to become soaked through any metal used in the industry. It is very hard to rule a heavy metal poisoning out, when thought of in combination with a Vincent's angina. Benzol may be included as having the same effect on the blood.

Diagnosis:—First choice, Vincent's infection. Second choice: Poisoning by some metal.

Dr. F. J. Milloy, Phoenix.

(Discussion of laboratory findings, before St. Joseph's Hospital Staff, June 11, 1928).

The diagnosis of this case, from the laboratory findings, rests between an infectious process and a disease of the blood-forming organs. It seems quite certain that the organism isolated from the ulcer on the lip is Vincent's angina. This supposition is borne out by the fact that neodiarsenol was subsequently given in the treatment. The blood picture suggests disease of the blood-forming organs, more particularly pernicious anemia. The gastric achylia would fit with pernicious anemia but does not prove it. The test for rennet, which would prove that this is a true gastric achylia, was omitted. There is certainly an extreme anemia with positive color index but this entire picture can be a part of the secondary anemia. There are no nucleated red cells. If nucleated red cells are absent during a remission in pernicious anemia, we are not surprised, but during a relapse the nucleated cells will certainly be found at some time. If not, we are very likely not dealing with the pernicious type. The same applies to the platelets. The blood platelets are never normal in a relapse of pernicious anemia. They are reported in this case as normal at one time and abnormal at another time. Neither would they be normal in an aplastic anemia. The differential blood count goes into considerable detail but the most outstanding thing is the absence of the transitional form of cells so it seems safe to assume that this is the picture of a secondary anemia and not a primary. The blood chemistry, icteric index, urine examinations and kidney function are normal. Later in the disease, we find a much more acute condition. In this stage we find a leukocyte count of 15,300. This finding is decidedly against primary blood disease and strongly indicative of an acute infection. There is a rather high lymphocyte count also. There is very little in the literature on virulent infections produced by Vincent's angina but what is given states that a high lymphocyte count and an extreme anemia go with a virulent infection. A case reported by Dr. McIntyre this

winter on a virulent infection of the uterus produced by Vincent's angina, gave a blood picture of extreme anemia. The blood picture just previous to the fatal ending of this case shows the extreme anemia with a red count of a little over a million and hemoglobin of 35 per cent with a high leucocyte count and blood platelets normal at one time and abnormal at another. This seems to definitely rule out the pernicious and aplastic anemia and points to a definite diagnosis of an acute infection which, no doubt, is Vincent's angina, which has formed a local infection on the lip. This general infection has produced death.

George O. Bassett, M. D., Whipple, Ariz.

(Discussion before the Yavapai County-Fort Whipple Discussion Group).

I will discuss this case from the viewpoint of the blood picture. In order that you may bear in mind the blood picture which I will attempt to discuss, I have prepared a chart (Chart 1.) which cites briefly various features and characteristics of this patient's blood which was shown on various examinations. A study of this blood picture compels us to realize that we are dealing with a fairly acute condition, one which in this case resulted in a moderately rapid death. Knowing, then, that we have a serious condition to consider, we are forced to make our differential diagnosis from among those various anemias which we know terminate fatally and with a fair degree of rapidity.

Three conditions come to our mind which we believe are somewhat simulated by this blood picture; namely, the aplastic anemias, pernicious anemia, and the graver types of secondary anemia.

Of these, first we will consider the aplastic anemia from the standpoint of the chart shown (Chart 2). For all purposes, we can discuss the idiopathic aplastic anemias and make our comparison from that, for all the anemias of this type more or less resemble the idiopathic form. The aplastic anemias are characterized by a failure of the blood-forming organs to make effort at regeneration. Therefore, if we show that this patient possesses ability to any degree to regenerate blood, we have successfully eliminated the aplastic anemias. Glancing down the table in Chart 1, we notice that these various blood pictures show the presence of reticulated cells, stippled cells, macrocytes and microcytes and that there is a definite poikilocytosis and anisocytosis, all evidence of the ability of this patient's blood to regenerate. In addition to this, we note that a comparison of the first and second admissions to the hospital, although an interval of two months intervened, shows a definite variation, not only in the total number of red cells but also in the leucocyte count, which show decided tendency to respond to stimulation. We are forced, therefore, to eliminate from our consideration any of the so-called aplastic or regenerative anemias.

Pernicious anemia (Chart 3) is a little bit more difficult to eliminate as a diagnosis. A study of this chart shows that the comparison between blood findings in this case and those that we know exist in pernicious anemia, shows a more definite resemblance. In pernicious anemia we have a leucopenia; we have a relative lymphocytosis; we have a progressive reduction in all types of cells, as we have here. In addition, in pernicious anemia, there is as in this case, a definite attempt at regeneration. We have the presence in pernicious anemia of reticulated cells, stippled cells, of the macrocytes and microcytes and the presence of poikilocytosis and anisocytosis. In pernicious anemia we have more than this man shows, for the evidence of regeneration seems to be a half-hearted attempt and not nearly so clear-cut

and well defined as the attempt that is made in pernicious anemia. In pernicious anemia one of the most typical findings is the presence of megakaryoblasts and normoblasts, the nucleated red cells which are typical of regeneration. These are absent in this blood picture. In addition, we have an achromia, which is never found in pernicious anemia. To the contra-wise there is an absence of a polychromatophilia, which is quite typical of pernicious anemia. Third, we have a questionable plus color index and in the absence of any definite statement it is impossible to say what this patient's color index was. Fourth, this patient's coagulation time ranges from twenty to thirty minutes, and in pernicious anemia it is usually normal or slightly above normal. These four points, together with the clinical picture that we have of a very anemic, wasted individual, compel us to conclude that this could not be pernicious anemia. Although it resembles it in many characteristics, at the same time there is sufficient variation in the blood picture and such marked contrast in the clinical picture that we are satisfied that true pernicious anemia does not exist.

That leaves us only the severe secondary anemias to consider (Chart 4). The more severe types of secondary anemia may be due to many and varied causes. Briefly, they may be grouped together under the heading of malignant growths, prolonged and severe hemorrhages, certain of the acute infectious diseases which fail to terminate favorably and the various septic processes, which are legion. We know that this man had a septic process. He was admitted to the hospital with a definite and severe infection of the mouth and gums. The diagnosis on direct smear shows Vincent's angina and possibly other organisms as contributing factors. This infection progresses and shows little or no tendency to heal and a gangrenous process becomes implanted, which further complicates the picture, so we see that we have sufficient infection about the mouth of this patient to give cause for a severe anemia.

Malignant growths, severe and repeated hemorrhages and a definite infectious disease, are causes we can rule out on history alone. The blood picture in a severe secondary anemia, due to whatever cause, may closely simulate the blood picture in any type anemia. However, as we have shown in our differential diagnosis of the two preceding conditions, there is usually sufficient difference in essential character to allow us to make a definite diagnosis. In a severe secondary anemia due to septic process there is, besides, the gradually increasing anemia (as indicated by the fall in the red cells, the white cells and the blood platelets, a normal tendency for the cells to regenerate. William Osler states that, in severe secondary anemias due to septic processes, the attempt at regeneration is usually enfeebled and irregular, due to the toxic action not only on the circulating blood but on the blood-forming organs. This, then, would account for the somewhat irregular picture that we have here. As stated previously we have here an achromia; this is characteristic of a secondary anemia in comparison with a pernicious anemia. The presence of a definite though irregular attempt at cell regeneration, the marked prolongation of the coagulation time and the attempts made by this patient as indicated or as shown by the definite leukocytosis, are all suggestive of the reaction that occurs in the body in any septic process. The man's clinical condition is also suggestive.

We are, therefore, able to eliminate all other conditions leaving us only a secondary anemia due to a septic process as a factor. My colleague (Dr. Loewy) will discuss further this diagnosis.

CHART I.

Composite Blood Findings in Case No. 13201.

1. Anemia.
2. Relative lymphocytosis.
3. Moderate to marked achromia.
4. Red Cells, 1,120,000 to 3,700,000.
5. Poikilocytosis.
6. Anisocytosis.
7. Stippled cells.
8. Reticulated cells.
9. Macrocytes and microcytes.
10. Leucocytes 3,500 to 20,400; Relative leucopenia to definite leucocytosis.
11. Polys, 1 to 64 per cent.
12. Lymphoblasts, 1 per cent.
13. Hemoglobin, 35 to 80 per cent.
14. Platelets decreased and abnormal.
15. Coagulation time, 20-30 minutes.
16. Clot retraction time normal.

CHART 2.

Aplastic Anemia.

1. A disease in which there is no active regeneration of cells, red, white or platelets.
2. Steady reduction in quantity of red and white cell.
3. Minus color index.
4. Progressive leucopenia.
5. Platelets reduced.
6. Bleeding time prolonged.

CHART 3.

Pernicious Anemia.

1. Decreased red cells, to normal.
2. Hemoglobin reduced.
3. Plus color index
4. Poikilocytosis.
5. Anisocytosis.
6. Macrocytosis.
7. Definite and active regeneration
i. e. Polychromatophilia.
Basophilic granulation.
Cabot's ring bodies.
Nucleated red cells.
8. Megaloblasts.
9. Myelocytes.
10. Leucopenia.
11. Relative lymphocytosis.
12. Myelocytes present.
13. Platelets diminished.
14. Anemia not indicated by physical appearance.

CHART 4.

Severe Secondary Anemia.

1. The blood picture may present all the features or nearly all of a pernicious anemia, or an aplastic anemia of a low grade.
2. Usually there is definite anemia that varies in intensity.
3. A leucopenia that is relative.
4. A relative lymphocytosis.
5. Moderate achromia.
6. Never polychromatophilia.
7. Evidence of cell regeneration, not so marked as in pernicious anemia, but enough to be positive.
8. Minus color index, never plus.
9. Macrocytes and microcytes present in small numbers.
10. Occ. stippled cell and reticulated cell.
11. Platelets diminished.
12. Seldom a severe leucocytosis unless the anemia is due to a severe infection, then never constant.

I. D. Loewy, M.D., Whipple, Arizona.

(Discussion before the Yavapai County-Fort Whipple Discussion Group).

This case history presents for our consideration three very important factors: first, a rubber fac-

tory operative; second, a sloughing ulceration of the lower lip; third, an anemia, with a very peculiar blood picture.

A prominent author on industrial medicine states that whenever we are called upon to treat a rubber factory operative, it is absolutely necessary that we ascertain just what his work is in the factory and whether or not he comes in direct contact with various chemicals used in this industry. In this case there is nothing in the history which tells us his exact work in the rubber factory. Therefore, exposure to certain chemicals can be inferred, but we are not absolutely sure of our inference. Crude rubber is usually cleansed of impurities in the factory and then rolled into sheets. If the rubber is to be vulcanized, it is mixed with sulphur, in various proportions. Substances such as lead, antimony and zinc, and coloring matter are often added to it. If the rubber is to be used in a liquid form, it is dissolved in either carbon bisulphide, carbon tetrachloride, benzol or naphtha. We are unable to determine, from the history, whether this patient was exposed to any of the above chemicals, but, if he was, the lead is apparently not a factor, as it produces a blue line around the gums, multiple neuritis, as shown by wrist drop, lead colic and metallic taste in the mouth. None of these symptoms is present. The sulphur does not produce any bad results. Carbon bisulphide and carbon tetrachloride expend their energies upon the nervous system, producing especially optic nerve disturbances. Naphtha is apparently harmless. Antimony produces symptoms similar to arsenic poisoning. This patient has no history of diarrhea, cramps, etc., only one pain in the abdomen being mentioned, which was relieved by an enema. This leaves benzol which must be considered in the production of this profound anemia.

Taking up the second factor of this patient's condition, we note a very severe and intense septic process in his mouth, which extended to his sinuses and was subject to slight improvements, but eventually became a very deep and profound process, the nature and extent of which can be judged only by the foul odor and sloughing, as his mouth could not be examined satisfactorily. This septic process could cause the profound anemia, the process causing an anemia and anemia permitting further sepsis, establishing a vicious circle, to which this patient's death might easily be attributed.

This is a very stormy blood picture. The blood count goes up and down and up and down. The characteristics of the blood count have been presented to you by my predecessor. There is a notable diminution of the white blood cells and the red blood cells and the hemoglobin, the granular leucocytes suffering the most, the polynuclears ranging from one per cent to sixty per cent, the total count ranging from 3,000 to 20,000. There is evidently very little attempt at blood regeneration and what there is is shown more in the red blood cells.

Anemias are classically divided into primary and secondary. The primary anemias are pernicious anemia and aplastic anemia. Pernicious anemia can be ruled out in this case by the lack of the lemon-yellow color, his emaciation and the absence of polychromatophilia and blasts in his blood. Also there were no hemorrhages. In pernicious anemia we have a blood destruction, with hyperplasia of the red bone marrow, which, in its attempt to answer the emergency call for more red cells, throws out into the blood stream many immature red cells, which consist of nucleated reds, microblasts, normoblasts and megaloblasts. None of these are present in this blood.

Idiopathic aplastic anemia is characterized principally by a failure of the hemopoietic areas in the red bone marrow to produce granular leucocytes, leucocytic count being reduced many times below a thousand. There is nothing definite enough in the blood picture to show an idiopathic anemia. If it exists at all, it is a partial aplastic anemia, secondary to a chemical poisoning and will be discussed later. Secondary anemias are toxic, intoxication, post hemorrhagic and secondary to malignant disease. There is a form of aplastic anemia known as myelophthisic anemia, which is caused by replacement of the red bone marrow with metastases from a malignant growth. In this case there has been no malignant growth discovered and the x-rays of the bones show no metastases. There is no hemorrhage in this case to account for a post hemorrhagic anemia. This leaves us to discuss intoxication anemia and toxic anemia. Previously we have eliminated all intoxication anemias except that caused by benzol. We cannot absolutely rule this out, excepting that there is evidence in the red blood cells of an attempt at regeneration, reticulated red cells being found and, in spite of the leucopenia, there have been several sharp leucocytoses. If this case is one of aplastic anemia, due to benzol poisoning, it could be considered one of partial aplastic anemia, but it is not characteristic. Toxic anemia may exist, caused by the profound septic mouth condition, septic temperature, infection of the various sinuses, stormy course and increase of this septic slough to the point of widespread gangrene. One is inclined to believe that this septic head condition plays an important part in the production of the anemia and death of the patient.

Our diagnosis is (1), sepsis, result of infection about the mouth and teeth, probably Vincent's angina, with secondary anemia; (2) barely possible intoxication and partial aplastic anemia, from benzol poisoning, which cannot be absolutely ruled out because of absence of any data in the history as to exposure to this chemical.

DIFFERENTIAL DIAGNOSIS

DR. CABOT: This seems to be a process starting in a mild ulceration, about the first of December, and ending in death toward the end of April, five months. So far as I see the mouth lesions were primarily, i. e. were the cause of the other troubles. One always wonders in the presence of anemia whether ulcerations such as these are not secondary to the anemia or to some other process in the bone marrow or elsewhere that we do not easily see. But I do not see any reason to suppose so here. I do not see why we should not say that this is an ulcerative process of the mouth, very possibly associated with Vincent's organisms, and resulting in a stubborn type of anemia which got better and then got worse, and showed peculiarities which I cannot well explain. There was a large percentage of reticulated cells, which ordinarily shows good effort at regeneration; on the other hand a small percentage of polynuclears, so that the effort did not include that side of the blood-making tissue. Whatever toxin is responsible for this condition seems to be depressing the red side of the blood forming tissue rather than the white. It does not fit pernicious anemia in a number of respects. We have no evidence of a primary bone marrow tumor. The spleen did not become enlarged till towards the end. He had no enlargement of the glands, and therefore I do not see why we should think of neoplasm of the hematopoietic system.

The striking thing all through the case is that there is nothing to cause the anemia except in and around the mouth, (including the accessory

sinuses.) If there is pathology elsewhere we have no way to know it.

I predict that Dr. Richardson will not reveal any source for this anemia other than that which is shown in the local lesions: septic anemia. I should like to know if any other opinions were held on that.

DR. HUNTER: We thought he might have a malignant lymphoma, which sometimes gives a low-grade infection of the mouth. This suggestion was one of the reasons why x-ray therapy was considered and given a trial. I do not see that it did any good.

DR. CABOT: Did anybody say where the lymphoma was?

DR. HUNTER: No. He had a pain in his abdomen.

DR. CABOT: That is the difficulty, isn't it? Were any other alternatives that you know of considered?

DR. HUNTER: Benzol poisoning also. He worked in a rubber factory as a cotton man, but we could not make out that he had had any exposure to the chemicals or solutions.

CLINICAL DIAGNOSIS (From Hospital Record)
Ulcerative stomatitis.

Anemia, secondary.

DR. RICHARD C. CABOT'S DIAGNOSIS
Ulcerative stomatitis (due to Vincent's organism?)

[Secondary (septic) anemia.]

ANATOMIC DIAGNOSIS

1. Primary fatal lesion.

Extensive ulcerative gangrenous stomatitis.

Secondary (septic) anemia.

2. Secondary or terminal lesions.

Purulent sphenoidal and ethmoidal sinusitis.

Small area of softening, left frontal lobe of brain.

Hyperplasia of the bone marrow.

Infarcts of spleen and kidneys.

Soft spleen.

3. Historical landmarks.

Meckel's diverticulum.

Chronic pleuritis, right.

Small areas of fibrous myocarditis, wall of left ventricle.

Undescended left testicle.

DR. RICHARDSON: He was an emaciated white man. The examination of the head showed a very extensive foul-smelling gangrenous stomatitis involving the roof of the mouth and extending into the region of the sphenoidal sinuses. The sphenoidal and ethmoidal sinuses and the posterior nares contained much foul stinking necrotic material. The brain weighed 1285 grams and showed no definite lesions except that in the left frontal lobe, the anterior third, and in the white matter, and extending to the cortical region on the left lateral aspect, there was a small area of past, softening. The bone marrow of the right femur was abundant, filled the cavity, was brown, rather meaty, and was cut out easily. Microscopic examination showed hyperplasia of the bone marrow presumably the hyperplasia that is associated at times with extensive sepsis.

The peritoneal cavity and the gastro-intestinal tract were frankly negative. There was a small Meckel's diverticulum. The mesenteric and retroperitoneal glands were negative.

The lungs showed pale red spongy tissue which yielded a small amount of reddish frothy fluid. There were no areas of pneumonia.

The heart and the circulatory apparatus generally were frankly negative. There were a few very small areas of fibrous myocarditis, of no significance.

The liver, gall-bladder, pancreas, spleen, and adrenals were negative.

DR. CABOT: We have had an extraordinary number of anemias here and at the Peter Bent Brigham Hospital this season—I have never seen anything like it—anemias that were not pernicious and were not the ordinary type of secondary anemia, and that in two cases were thought in the end to be bone marrow tumors of the hemopoietic system. In one case we have never so far as I know found the cause,—a case in which there was some evidence of benzol poisoning, but not enough to be convincing. I suppose it means that we now make a more careful study of anemias that in the old days would have been called pernicious anemia and nothing else. These cases were all easily distinguishable from pernicious anemia, but when we got beyond that it was difficult to say anything with certainty.

C. R. K. Swetnam, M.D., Prescott, Ariz.

(Discussion of Case 2, before Yavapai County-Fort Whipple Discussion Group).

Assuming that all of you have read this history we will not go over it again, but there are a few points we wish to emphasize. A girl of 20 entered the hospital complaining of profuse bleeding from the nose. She had worked in a rubber factory for eight months and for the last four months had been weak and had digestive disturbances, these symptoms gradually increasing. Her work was cementing rubber heels. On examination two things attract our attention as being of the greatest importance. They are very profound anemia and evidence of infection around the upper respiratory passages. It seems to us that all symptoms and findings can be attributed to those two things. Weakness, dizziness, purpura, bleeding from mucous membranes (nose, mouth, vagina, gastro-intestinal, and lungs), loss of weight and appetite. She had sore gums, sore throat and tenderness over both mastoids. An x-ray showed both antra were "much less than normally radiant." Her temperature ran from 100.3 degrees to 105.8 degrees and with wide daily variations, which means it was continuous.

The first thing we consider is the anemia; because it seems to us the most important. What form of anemia have we? We have only 1200 white cells and of these 16 per cent polymorphonuclears and 76 per cent lymphocytes—a very marked leucopenia, especially characterized by decreased polymorphonuclears and apparent but not actual increase in lymphocytes. The reds are 1,715,000 and there are no blasts nor other forms of immature cells, and the platelets are practically absent. The hemoglobin was 40 per cent. Now, the lack of any immature forms of red cells and the extremely small number of polymorphonuclears shows that the red bone marrow is not functioning at all, or very little, and proves this to be an aplastic anemia. In studying the etiology, we find a good many diseases causing a secondary aplastic anemia; and, also, an idiopathic aplastic anemia, which simply means that in some cases the cause has not been found. But among the known causes are chronic benzol poisoning and sepsis. In this case we have evidence of both, but we believe the sepsis is secondary.

Let us consider the question of sepsis. Four years previously the patient had "growing pains" in the legs, which probably meant some focus of infection. But after this she was well and attained her best weight. One year before admission she had an abscess of the ear, which cleared up in one week, suggesting that she had nothing chronic at that time. Then, there is no more sug-

gestion of any kind of infection until after she had had for some time symptoms referable to anemia. The evidence of infection in the terminal stages will be mentioned later.

The next question is: What is the relation of her occupation to her present condition? As we have mentioned, her work was cementing rubber heels on rubber shoes. Rubber cement is made by softening pure rubber (cut fine) in carbon disulphide, then dissolved in benzol. The benzol is very volatile and, as it is only a solvent, it does not enter into any combination with rubber, but all goes off into the air. As you know, about 80 per cent of benzol is absorbed by the human body when exposed to a mixture of benzene and air. Santesson found that, in eight cases out of nine of benzol poisoning, the employment in benzene charged air was from one week to four months and all in girls between 15 and 20 years of age. It was also found that, in cases where chronic poisoning has occurred, the atmosphere contained more than 20 parts benzol per 10,000 of air. Most factories have changed from benzol to naphtha as a solvent. Benzol is derived from fractional distillation of coal tar and is among the first products to come off, being much more volatile than naphtha. Chronic benzol poisoning takes the form of an aplastic anemia with subcutaneous hemorrhages and bleeding from mucous membranes as terminal changes. Benzol is a powerful leucotoxin, destroying the white blood cells and the parenchyma of the blood-forming organs. The myeloid tissue is damaged more than lymph glands and so affects the polymorphonuclears more than the lymphocytes. The erythroblastic tissue of the bone marrow is also destroyed, although the red cells in circulation are damaged relatively less. Because of its property of destroying leukocytes and leukoblastic tissue, benzol was tried as a treatment in leukemias, and that gave opportunity to study its effects. It reduced the leukocytes all right, but it damaged the erythroblastic tissue of the bone marrow and aggravated the anemia. It also reduces the platelets, and causes digestive disturbances, is injurious to the heart muscles, is an irritant to the kidneys, causes a lighting up of latent infections, and, in large doses, produces a hemorrhagic tendency. For chronic benzol poisoning there is no treatment yet developed and the effects are likely to continue after the toxic influence has been withdrawn. This case seems to us to fit in exactly, and the effects mentioned would account for the infections around the nose and throat. There was a latent tonsil infection and the influence of the benzol poisoning caused it to become active, and to spread to the ear and probably to the gums. A dentist found evidence of Vincent's angina, but as far as we know that was not confirmed and no more attention was paid to it. The fever was probably increased by the infection, but in aplastic anemia there is fever, so much that it may be confused with typhoid, and in this case a Widal was done and found negative.

Our diagnosis is chronic benzol poisoning with the pathologic findings of aplastic anemia, which it caused. Benzol has not been demonstrated in the tissues.

E. A. Gatterdam, M.D., Whipple, Ariz.

(Discussion of Case 2, before Yavapai County-Fort Whipple Discussion Group)

In aplastic anemia we have an inability of the bone marrow to produce new cells. It is due to destruction of the bone marrow by fatty changes, or by crowding out of the hemopoietic centers by tumors. The latter is classified under myelophthisic anemia. Primary or idiopathic anemia is a progressively fatal disease, the cause of which is

unknown. This type of anemia, caused by benzol and trinitrotoluol poisoning, radium, roentgen rays, and certain infections, as typhoid and sepsis, is usually considered a secondary anemia, and the prognosis depends upon the extent of destruction of the bone marrow. It occurs chiefly in young girls.

The effect of benzol is cumulative so that the condition progresses after removal of the poison. It probably has a direct affinity for the bone marrow and the conversion of it into fat. The x-ray and radium rays act probably directly on the bone marrow with destruction of it, as it is more or less embryonic in type. Comparative studies in treatment show that these rays are of more value in the leukemias than is benzol, because localized areas can be treated, whereas benzol affects the entire bone marrow. The marrow of the short bones is attacked in benzol poisoning, consequently the red blood corpuscles are affected and their production inhibited.

The blood picture in this case shows an absence of regeneration on the part of the bone marrow, in that there are no young red blood cells, such as normoblasts, megaloblasts, etc., because of loss of function of the hemopoietic centers. The red blood cells in the circulating blood in this type of anemia are fairly normal except for a slight increase in the fragility. All the white blood cells are reduced quite markedly, except the lymphocytes. This gives a relative lymphocytosis, as is shown in this case. The lymphoid tissue of the body apparently is little affected in this disease. The blood platelets are markedly reduced and, as a result, purpura and hemorrhages develop. Even after repeated blood transfusions, the red cells are reduced quickly. This is due to the lack of platelets and the resultant hemorrhages.

The chief things to differentiate in this case are: secondary anemia, idiopathic purpura and myelophthisic anemia. Of the first, the differentiation in a marked case is easily made by the blood picture. In idiopathic purpura there is a marked diminution of the platelets, which is the chief finding of the blood. Also, in this condition the reaction of the bone marrow to hemorrhages is normal, whereas in aplastic anemia this reaction is lacking, and there is a relative lymphocytosis. Hemorrhages in aplastic anemia usually occur late in the disease. In myelophthisic anemia the differentiation is made by finding the tumors in the bone marrow.

In this case, the history and physical findings coincide with the picture of an aplastic anemia caused by benzol poisoning. It is the case of a young girl, with history of exposure to benzol which is followed by anemia of the aplastic type and uncontrollable hemorrhages. In the autopsy we should expect to find a marked fatty degeneration of the bone marrow of the long bones and a lesser destruction of the red marrow in the short bones, as the red cells are less affected than the white cells.

Group Diagnosis:—(1) Benzol poisoning, chronic.
(2) Secondary aplastic anemia.

Discussion

By Richard C. Cabot, M.D.

NOTES ON THE HISTORY

The two striking symptoms in the present illness are the nosebleeds and the trouble with her gums.

I do not see anything important that is added in the past history.

NOTES ON THE PHYSICAL EXAMINATION

"Increased breath sounds at the apices of both lungs" does not mean anything.

None of the examinations of the urine was

made from a catheter specimen, and we have no reason to pay attention to them.

That blood is the interesting thing. There you have the old problem of a contradiction of reports. The report of achromia cannot be true if the hemoglobin is 40 and the reds 1,715,000. That is a very common contradiction. It has been my experience that when you have to believe one of them it is better to believe the report of achromia in the smear, because the hemoglobin measurements are easier to make a mistake about. So I should believe that probably there was achromia even though the hemoglobin test is opposed.

"No reticulated cells." In a blood like this that is very important. It means that we have no evidence of regenerative effort in the marrow.

She certainly did not suffer for lack of donors and help on that side.

"Following the transfusion April 11 there was slight cough." Until now nothing has been said about cough, other than her brother's report about it.

"Quartz lamp treatment was started that day and given April 11, 19 and daily thereafter." I take it because they had no idea what else to do and thought they might as well take a chance with that.

These leucocyte counts are extraordinarily low. I do not remember having seen any lower than six hundred.

"Two days later the nosebleed recurred." So the treatment was not obviously effective.

DIFFERENTIAL DIAGNOSIS

She certainly died of anemia. Our only possible point of discussion is its type or cause. In the beginning it seemed perfectly natural to suppose that this was an aplastic anemia. A profound anemia at her age and in her sex with hemorrhage, with low white count, with the absence of any known cause and of any signs of regeneration in the reds, is just the anemia that we call aplastic. But as we come to the examination of the mouth and parts around it there is a certain amount of evidence of infection. Could it be a secondary septic anemia? Then of course with this extremely high count of lymphocytes—high relatively, never absolutely—one thinks of leukemia; but I do not see why one should. What has happened is that the polymorphonuclears have given out; there is no increase of lymphocytes. They are proportionately numerous but not increased. The difficult thing is to call it a case of aplastic anemia with four and a half million reds which she had shortly before her death. We do not often see transfusions fill people up like that. She has had an extraordinary number of them. It might be that that would account for it.

She has had continuous fever, which would seem to favor infection; but any of the severe anemias may have fever.

She has had continuous fever, which would seem to favor infection; but any of the severe anemias may have fever.

I do not see that we have conclusive evidence of industrial poisoning. She worked in a rubber shoe factory. There are various substances to be thought of, especially lead and benzol. But we have no definite evidence of them here. I suppose they looked into this. If they have evidence we ought to have it. Working in a rubber factory does not prove poisoning.

DR. TRACY B. MALLORY: I think some additional information should be given there. Dr. Cabot. It is known that there have been seven almost exactly similar cases from this factory.

DR. CABOT: That certainly looks as if there were some definite industrial poisoning there, and of course we would think of benzol rather than

lead. Benzol has a tendency to diminish the whites, as in this case. Lead has not.

A STUDENT: Is all this bleeding particularly characteristic of benzol poisoning?

DR. CABOT: It is characteristic of aplastic anemia; I do not remember having heard of it in relation to benzol. Of course if benzol hit the whites it would hit the platelets too, according to our present theory of their formation. And if it hit the platelets it would cause hemorrhages.

A STUDENT: How about the duration, Dr. Cabot? Isn't it short for aplastic anemia?

DR. CABOT: Four months? No, I should not say so. One of the characteristics of the disease is that it has a steady downhill course with none of the remissions that you get in pernicious anemia.

I think it is not a septic anemia. I believe it is either aplastic or due to benzol. I should think further knowledge in relation to that question would have to rest on further knowledge of the conditions under which she worked, with the possibility or probability of her having taken much benzol into her system. The story that we have of those other cases in the factory certainly favors benzol poisoning. I think on the whole if I had to bet I should say benzol now rather than aplastic anemia.

ADDITIONAL NOTES

It was learned that the cement used by this patient in her work contained 80 per cent. of benzol.

A member of a commission for the investigation of benzol poisoning said in consultation: "The blood smear seems typical of benzol poisoning."

CLINICAL DIAGNOSIS

(From Hospital Record)

Benzol poisoning.

DR. RICHARD C. CABOT'S DIAGNOSIS

Benzol poisoning.

ANATOMICAL DIAGNOSES

Benzol poisoning.

Central necrosis of the liver.

Blood aspiration and bronchopneumonia.

Inactive bone marrow.

DR. MALLORY: The necropsy here is, as far as I know, fairly typical, of the usual findings in benzol poisoning. It is the first one that I have ever seen. At the time of necropsy the girls' weight had dropped to seventy-two pounds, although even then she did not seem very emaciated.

She showed the scars of at least eleven different incisions for transfusions.

She had a very definite jaundice which I understand developed during the last three days of life.

The peritoneal cavity showed about 5 cubic centimeters of fresh unclotted blood down in the posterior cul-de-sac, and the entire mesentery was peppered with minute petechial hemorrhages. The stomach showed a great many petechial hemorrhages in the mucosa.

The intestines were negative except for a staining of the mucosa of the ileum just above the ileocecal valve, which was dark reddish black, presumably another hemorrhage.

The pleural cavities both showed small amounts of blood-tinged fluid.

The lungs were rather interesting. The right apex showed an old fibrous scar, but no evidence of active tuberculosis. Around the scar was a consolidated bright red area 2 centimeters in diameter, obviously a fresh bronchopneumonia. The left lower lobe showed a more unusual picture. It was distended and one section was filled with numerous small, densely consolidated areas, firmer than bronchopneumonic patches, and a deep blackish red in color, more like infarcts. The out-

lines were sharp but irregular, in contrast to the usual smooth outline of infarcts of the lung. Microscopic examination showed that they consisted of aspirated blood, presumably from the hemorrhages in her nose or tonsils, with beginning infection around the edges of the areas. If she had lived a few more days they perhaps would have degenerated into abscesses.

The heart was very small. It weighed only 170 grams. The muscle tissues were soft and flabby. There was a very slight degree of arteriosclerosis.

The liver weighed 1220 grams. That is rather large in proportion to the size of the patient and the size of the remainder of the organs. Scattered throughout the tissue were many slightly yellowish patches each of which showed a minute hemorrhagic center, and microscopic examination confirmed the diagnosis of central necrosis, very widespread, which would explain the terminal icterus.

The spleen was not very remarkable in gross. Microscopically it showed a great deal of phagocytosis of the red cells and a great many endothelial cells filled with hemosiderin. That is characteristic of a toxic hemolytic anemia in contrast to familial hemolytic anemia.

The kidneys were negative except for a congenital anomaly of the pelvis on the left.

The bladder showed a few petechial hemorrhages.

The uterus was large. The cavity was filled with a large clot, and a still larger clot was expressed from the vagina.

The left ovary contained a large corpus hemorrhagicum.

The bone marrow of the rib was normal in appearance, red in color. The femoral bone marrow was bright yellow, also normal. Microscopic examination showed a purely fatty marrow in the femur with no evidence of regeneration. In the rib marrow red cells were still being formed. There were numerous normoblasts and occasional megoblasts. We found no megakaryocytes, which of course accounts for the low platelets, and no evidence of white cell formation.

DR. CABOT: If there had been no industrial history in this case would you not have had to call it aplastic anemia?

DR. MALLORY: I think so. Benzol poisoning is one type of aplastic anemia. I do not believe that there is any pathological difference that would justify one in making an absolute diagnosis of benzol poisoning. All that we can say is that it is consistent with it, and when we have a history like this there is no doubt about it.

CASE NO. 2

(This is Case 13391, of the Case Records of the Massachusetts General Hospital, as published in Boston M. & S. Jour., of Sept. 29, 1927, p. 521, republished in May issue of this journal).

H. B. GUDGEL, M. D., Phoenix, Ariz.

(Discussion before St. Joseph's Hospital Staff, Phoenix, on June 11, 1928).

The essential points in this history, rearranged for more convenient study, are as follows:

Nothing outstanding in the family history, except that one brother had rather frequent attacks of nosebleed, easily controlled.

Personal History:—Young girl, twenty years old. From childhood she had frequent nosebleeds; at age of ten had influenza. Always fairly well but never rugged. Four years ago she came to a Massachusetts mill city from Canada. Weight at that time 122 lbs. About this time she complained of "growing pains" in the legs. One year before admission

to hospital she had abscess in right ear. Eight months before admission to hospital she began working in a rubber factory. Four months before admission she began to feel very tired at midday. Odors of cement nauseated her. Three months before admission she had a cold, which cleared up in two weeks, but she failed to gain strength, became weaker, lost interest in everything. Two months before admission she had nosebleed from right nostril, easily stopped. One month before admission her menstruation lasted three days longer than usual and was profuse. Two weeks before admission her gums on right and at back became sore and swollen. She became weak, tired, and was sent home to rest. April 6, day before entering hospital, bleeding from both nostrils with large clots.

Examination:—Pale, small (emaciated) girl, propped up in bed; breath very repulsive. Diffuse pigmentation of skin; many large purplish spots over lower extremities; tonsils inflamed; one hemorrhagic spot on hard palate. Extensive pyorrhea. Heart slightly enlarged; systolic murmur at apex. Blood pressure 110/70, 100/52. Increased breath sounds at apex of both lungs. Abdomen and reflexes normal. Hazy left disc, especially on left nasal margin. Urine, 32 to 63 ozs., smoky, turbid, slight to heavy trace of albumen in four specimens; fifth specimen showed gross blood. (Vaginal bleeding which continued throughout stay in hospital). Sp. gr. of urine 1018 to 1014, red cells in three specimens, leucocytes in two. At entrance, blood showed marked leucopenia (1200 leucocytes, 16 per cent polys, 76 per cent lymphocytes, 8 per cent large mononuclears), hemoglobin 40 per cent, red cells 715,000; inequality of red cells, moderate achromia, platelets practically absent, no irregularity or stippling; clotting time 12 to 19 minutes. Wassermann negative. NPN 26 mgm. Gross blood in stools.

X-ray showed unusually small sinuses, antra slightly hazy, right mastoid cells not as clear as left.

Temperature 100.3 to 106.8; pulse 100 to 162; respirations 20 to 48. Platelets and reticulocytes diminished. Repeated blood tests showed slight rise in red count and an irregular falling in leucocyte count, 1000 on April 8, 600 on April 20; polys absent in two smears, one per cent in third few in fourth; irregular in outline, vacuolated, coarsely granular.

I am to consider this case from a general clinical viewpoint, although the blood findings need to be mentioned. Some of the clinical manifestations do not coincide with the laboratory analyses, proving the necessity of knowing the blood findings which must form the basis of diagnosis in this case.

The general symptoms, as well as the blood findings, suggest some type of anemia. A young girl (20 years old), emaciated, pale, purpura on extremities with frequent hemorrhages, leucopenia, platelets decreased or nearly absent, relative lymphocytosis, hemoglobin 40 per cent, red cells one-sixth of normal, bleeding time 16 minutes, coagulation time 14 to 19 minutes, hemorrhages from mouth, gums and vagina, blood in urine and feces, irregular temperature. However, we find this case complicated, as is usually the case with anemias. We find pyorrhea, Vincent's angina, some increase in breath sounds in lung apices, slight enlargement of heart, a slight presystolic murmur at apex. As the result of some infectious focus, we very frequently find heart murmurs varying from slight to distinct, variable temperature, loss of energy and appetite, albumen in urine, with a terminal secondary anemia. In all cases of anemia focal infection must be looked for and considered. In the case report mention is twice made that patient

became nauseated and very weak each day on account of the odor of cement used in the rubber factory where she was at work. This would suggest a possible hemolytic anemia as the result of coming in contact with certain chemicals of the coal tar group.

Anemia from malignant disease can be fairly well ruled out.

Renal disease is capable of producing anemia. In this case, albumen is present, probably the result of blood in urine and not the result of nephritis. Neither history nor laboratory findings suggest such a diagnosis.

Hemophilia, or Bleeder's Disease, finds some suggestion in the symptoms. Epistaxis was present in early life; also one brother had frequent nosebleed. Epistaxis, to my way of thinking, is not a dependable sign of hemophilia, and the rule for hemophilia (through mother to son) is dependable. The blood findings of hemophilia would be those of hemorrhage, and directly opposite to those found in this case.

Purpura hemorrhagica needs to be considered because of the hemorrhages from mucous membranes and into the skin. These purpuric spots appear to have come suddenly, on the extremities and hard palate, and in conjunctiva, all areas consistent with purpura hemorrhagica. Leucocytosis is a differentiating symptom, not present here.

The hemolysis produced by focal infection, pyorrhea and Vincent's would give an anemia similar in symptoms, but would probably show the blood picture of a secondary anemia different from this case.

Secondary and hemolytic anemias are very easily confounded with the anemia of tuberculosis, especially in the later stages of this disease, when the anemias of the secondary type. Clinically it is necessary to rule out tuberculosis, because this girl was never rugged, has been pale, weakly, with irregular temperature, some increase in breath sounds over apices, hemoptysis, etc. The anemia is not that of tuberculosis.

There are some evidences of chlorosis, green sickness. This is a young woman, living away from home, probably not under the best conditions, with loss of energy, unusual fatigue, hemorrhagia, nervousness, depression, pale mucous membranes, facial pallor and dyspnea. Greenish skin is not a common symptom of chlorosis, pallor being the rule. The blood findings of chlorosis with its striking achromia, increase in platelets and reticulated cells and leucocytosis, are absent in this case.

With the symptoms which have been named and the blood picture (leucopenia, extreme decrease in red cells, absence of platelets, hemoglobin 40 per cent, relative lymphocytosis, moderate achromia) we must think of pernicious anemia of the aplastic type. This may have been superinduced by secondary or hemolytic anemia, as the result (a) of some focal infection, or (2) coming in contact with some chemical substance in the manufacture of rubber. The changes in bone marrow and blood in aplastic anemia are very insidious, causing delavias in early symptoms, the changes usually being far advanced before troublesome symptoms arise. The gradual loss in strength, the fatigue, the striking pallor, dyspnea, are symptoms coming late.

HARLAN P. MILLS, M. D., Phoenix, Ariz.

(Discussion of blood picture, Case 2, before St. Joseph's Hospital Staff Meeting, June 11, 1928.)

The blood picture is well defined and quite characteristic, and was evidently considered of significance in the study of this case, as examinations were made at frequent intervals. The important features of the blood picture are the low red

count, leukopenia with low percentage of polynuclears, and the entire absence of immature red cells. The red count on entrance was 715,000 with hemoglobin 40 per cent, giving a color index of 2.8, which is hardly consistent with the record that "moderate achromia" was present. After many transfusions the red count increased to six times the count on entrance, while hemoglobin increased two times from the findings on first examination. The high lymphocyte percentage is evidently a relative increase on account of the very low percentage of polynuclears. The statement made repeatedly of "platelets practically absent" or "greatly reduced" is of significance in diagnosis. After repeated transfusions, the red count and hemoglobin rose steadily until, a few days before death, there were over four million reds with hemoglobin 80 per cent. Coincident with this rise in reds and hemoglobin, there is a continuous decline in leukocytes, as low as 400 being recorded, the polynuclears constantly reduced and absent on some examinations. This also is an important diagnostic finding. Blood platelets and reticulocytes remained reduced.

The blood findings in this case record are practically diagnostic so far as the location of the essential lesion, which evidently involves the blood-forming function of the bone marrow, which is to produce red cells, platelets and polynuclear cells. The prominent clinical feature of the case, i. e., multiple hemorrhages, are no doubt secondary to blood platelet reduction. As to origin the condition may be idiopathic, or, as more probable in this case, the result of a chemical poisoning, associated with the patient's occupation.

My diagnosis is aplastic anemia, with secondary purpura hemorrhagica. This condition must be differentiated from purpura hemorrhagica with resulting anemia. In purpura hemorrhagica we would expect the blood changes characteristic of hemorrhage: reduced red count and low hemoglobin, but in severe cases nucleated reds and other immature cell forms would be present and there should be leukocytosis instead of leukopenia. Blood platelets would be absent or greatly reduced and the coagulation and bleeding time lengthened. Absence or reduction of circulating blood platelets results from destruction or depressed activity of the megakaryocytes of the bone marrow resulting from benzol or other poison or from certain toxins. This action on the function of the bone marrow may extend to and inhibit other activities beside platelet formation, as red cell and polynuclear cell formation, as is well illustrated in the case under discussion.

NEWS ITEMS

Dr. Charles Thompson of Pueblo, according to the Santa Fe New Mexican, was in Santa Fe recently looking over the country in that region with the idea of establishing an institution for the care and treatment of nervous and mental diseases. Dr. Thompson has had charge for a number of years of "Woodcroft," an institution in Pueblo devoted to these diseases and as he has sold out there he is looking for another location.

The semi-annual meeting of the Arizona State Board of Nurse Examiners was held at the Grand Canyon, June 12 and 13. At the meeting of the board, certificates for entry into the practice of professional nursing in the state of Arizona were issued to 19 applicants, who passed the state examinations.

Though 29 took the nursing examinations, only 19 received a passing grade, and were awarded

certificates. Highest grades were made by Miss Charlotte Harrington, of St. Joseph's Hospital, and Miss Florence Linderman and Mrs. Helen Irene Upp, of Good Samaritan.

Thirty-seven certificates were issued to nurses from 18 states changing residence. The board revised the ruling regarding the issuance of permits to practice professional nursing in Arizona pending registration, and the renewal of the annual fee has been changed to read as follows: The length of time of permit shall be for two months, and at the end of that time, it must be renewed, when an extension of 30 days will be allowed pending delay of application of registration. If application and credentials are not in possession of secretary-treasurer, accompanied by the registration fee, the candidate may be considered ineligible for registration in Arizona and permit withdrawn.

The Arizona State Board of Health has done considerable work in inspecting the tourist camps of Arizona. This work was first started by Miss Jane Ryder in 1925. We understand that those camps which meet the approval of the inspector are given signs reading: "Approved Tourist Camp—Arizona Board of Health." The report is that there has been a definite improvement in the sanitary features of many of the camps since the inspection has been started.

The Cochise County Medical Association had as a program an operative clinic by Drs. E. W. Adanson and H. M. Helm. Previously operated cases were also shown.

Dr. A. A. Shelley, Heard Bldg., Phoenix, Arizona, is in St. Louis taking a post graduate course at the Washington University of St. Louis in obstetrics. He writes that he has had a particularly satisfactory course. He will return home early in July.

Dr. O. H. Brown attended the A.M.A. meeting in Minneapolis. He gave a paper on the Theory, Etiology, Symptoms and Treatment of Food Sensitizations, for the Society of the Study of Allergy. He also discussed Dr. A. H. Rose's (San Francisco) paper on Food Sensitizations before the section of therapeutics and pharmacology of the A.M.A.

Dr. R. D. Kennedy of Globe attended the A.M.A. meeting in Minneapolis and served the Arizona State as its delegate. He gave a clinic on fractures.

Dr. Collander of Tucson attended the A.M.A. meeting in Minneapolis.

Dr. Dudley Smith, Proctologist of San Francisco on his return from the meeting of the A.M.A., stopped over in Phoenix to visit his nephew, Dr. Willard Smith. He attended the regular June meeting of the staff of the Good Samaritan Hospital, and spoke upon the subject of rectal and colon diseases.

Dr. W. W. Watkins is spending the month of July away from Phoenix. He will first go to Oak Creek Canyon and then to the coast.

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COMMITTEE ON COST OF MEDICAL CARE

In May 1927, ten physicians—three of whom were private practitioners—three economists, and three non-medical persons engaged in public health work, organized "The Committee on the Cost of Medical Care." The committee has since been enlarged. It has affiliation with no other organizations: i. e. to say it is not being sponsored or governed by any heretofore existing organization. It has the support and encouragement of numerous organizations.

A five-year program has been laid out, in which all phases of the question bearing upon the cost of medical care to the public are to be investigated. Quoting from one paragraph of the committee's literature: "The committee will deal not only with the cost to the people of hospital care, nursing, dentistry, drugs, physiotherapy, surgery, and other medical services, but with various problems involved in the prevention and cure of disease. The demand for medical services and their supply and distribution is the subject of a preliminary survey. The major group of studies deals not only with the cost to the family, but also with the return accruing to the physician, the nurse, the dentist, and other agents furnishing such services.

The American Medical Association is to conduct a survey of the incomes of physicians. Other organizations are to cooperate in other investigations.

The literature of the committee contains a quotation from a discussion in 1922 of the Journal of the Michigan State Medical Society which apparently puts into words the impetus for the origin of the committee. The quotation follows: "The tendency of

the day is that when any group of citizens cannot afford to purchase certain privileges, services or needed comforts the demand goes forth that the state supply them that which they cannot now obtain. The state and county usually comply with the pressing demand of its citizens. We are fearful that we are on the eve of such a demand from the people. What are you going to do about it?"

Another paragraph is worth quoting: "During the past decade or two, there have been other warnings and questions, like these, but no effort has been made by medical organizations to meet the problem. It was not reasonable to expect them to do so. Private practitioners are absorbed in the technique of treatment. It is extremely difficult for them to see the problem as a whole. The points of view of public health and economics, combined with the point of view of private practice, are needed. These are all found in the Committee on the Cost of Medical Care. The interests of the private practitioner will be adequately represented and safeguarded as the work of the committee develops."

We have presented the subject succinctly but we trust clearly. Comment is reserved for a later issue.

EXAMINATIONS FOR MEMBERS OF SPECIAL SCHOOLS OF HEALING

An initiative petition, bearing a necessary number of signatures to place it upon the ballot this fall has been filed with the secretary of state, and reads as follows: "Amendment to the Constitution of the State of Arizona. Be it enacted by the people of the State of Arizona: That the Constitution of the State of Arizona be and is hereby amended by adding thereto another

section to Article II. Declaration of Rights; the same to be number 35, and to read as follows, to wit: Section 35. No law shall be enacted in this state respecting the establishment of any method of healing, or prohibiting the free exercise of the right of any person to choose any method of healing, or that will compel any healer to be examined by a board of examiners which is not entirely composed of his or her school of healing. All legislation conflicting with this amendment is hereby repealed."

This measure is worded and designed to appeal to the layman who is overly jealous of his personal liberty and rights. A study of the full meaning of the text of the petition, however, will convince any thinking person that the enactment of this into an amendment to the constitution will throw down the bars for admission to practice in the state to all sorts of irregulars and poorly trained members of any school of healing.

Those who practice any method of healing might have noncontents and ignorant persons, unable to pass the examinations prescribed, who would withdraw and set up their own and an independent school of healing; under this amendment they would be their own judges as to their fitness to practice upon the sick of the state.

On this course of reasoning it is easily seen that the amendment is pernicious and would defeat much of the purpose for which it is planned.

Those who have loved ones and who think the best is none too good for them, will not wish to see requirements for practice of the healing art in the state made any lower than they are at present. The amendment would cause a great increase of suffering and a tremendous increase in the public's financial burden for illness.

If this petition becomes an amendment to the constitution there will be no easy way to remove it and no way whereby laws could be passed to properly control those who administer to the sick.

Every person interested in the welfare of our state should work against and vote against this proposed amendment.

Arizona doctors! tell each patient and friend you meet the importance of voting NO on Initiative Petition Nos. 100 and 101.

INTERSTATE POST-GRADUATE ASSOCIATION WILL MEET IN ATLANTA

For the first time in the South there will meet a medical association whose procedure is unique and of remarkable interest.

The Interstate Post-Graduate Medical Association of North America will meet in Atlanta, Ga., October 12th to 19th inclusive. This association in 1926 met in Cleveland, Ohio, where nearly 5,000 practicing physicians were registered. At the

Kansas City meeting last October 5,200 were registered.

Those who come to this remarkable sort of medical meeting will really be given a post-graduate course by the leading medical men of this country and abroad. The daily meetings are held from 7 A.M. to 1 P.M., from 2 to 5 P.M. and from 8 to 10 P.M. Every one who has attended these meetings has been amazed by the magnitude of the work done, by its quality, by the number of distinguished guests and by the remarkable interest aroused.

It is hoped that every physician in the Southern States who can possibly do so will plan now to attend this meeting. The only charge imposed on physicians who are in good standing in their country, state and national organization is a registration fee of \$5.00.

NEWS ITEMS

Dr. A. E. Cruthirds specializing in eye, ear, nose and throat work in Bisbee has moved his offices into the building formerly occupied by the Antlers Hotel. The new quarters affords the doctor ample room.

The Douglas, Ariz., City Health Board under the supervision of City Health Officer Causey is starting this month a systematic collection and disposal of garbage.

The Northern District of the Arizona State Medical Association met at Flagstaff, June 16th. The program consisted of an address by the President of the Arizona State Medical Association, Dr. A. C. Carlson, on the subject of The Workmen's Compensation Act, a paper by Dr. R. J. Dostal, on Bone Cysts and a paper by Dr. (dentist) Vaughn S. McGuire on Relations of Physicians and Dentists. Ten physicians and dentists enjoyed the program.

Dr. C. B. Austin, Hidalgo County, New Mexico, Health Officer vaccinated about 100 persons in his county who were possibly exposed to small pox in Duncan, Arizona, with the result that no cases of the disease appeared in his county.

The Arizona bureau of child hygiene reports that for the past year it has reached 1100 infants under one year of age, 1600 pre-school children and 355 prospective mothers. The number of births in the state for the year was 8626. Physicians conducted 33 health conferences examining 700 infants and pre-school children. Nurses conducted 23 conferences inspecting 248 children. Nurses also visited 4250 homes giving instruction in maternal and child care. Dentists conducted nine conferences giving dental advice to 350 children.

It is reported that a certain small hotel between Gallup and Albuquerque recently had a waitress to develop typhoid fever; her husband is a cook. Three other waitresses and the assistant cook are not feeling well. Health examinations of restaurant employees and a free use of anti-typhoid inoculations are indicated.

OBITUARY

JOEL IVES BUTLER.

(Copied from Tucson Newspaper)

The following tribute to the dead physician was written by Dr. William V. Whitmore, colleague of Dr. Butler for many years:

This community has not recovered from the shock of the death of Dr. Butler, which occurred in the early morning of last Thursday, June 28, 1928, in Los Angeles. He had gone there several weeks

before. The profession knew of his serious illness, but was wholly unprepared for his untimely demise.

Dr. Butler came from sturdy New England stock. He was born in Meriden, Conn., where his ancestors had been residents for many years.

Probably no man ever came to Tucson—very few to Arizona—better equipped for the practice of medicine than Dr. Butler. He had a broad general education, being a graduate of Yale—Ph. B. '97. He supplemented his medical course at Johns Hopkins by an internship at that hospital for two years. This was followed by one year as house surgeon at Massachusetts General hospital, Boston. Upon removing to Tucson, he surrendered his assistant professorship in surgery at Yale Medical College.

He came to Tucson 16 years ago. Soon thereafter, he with Drs. Clyne, Huffman and Whitmore, took over the Rodgers hospital, which they conducted for some seven years. Dr. Butler was president of the corporation, manager and superintendent of the hospital for seven years.

His unusual ability was at once recognized, his counsel was sought and his skill utilized. His outstanding prominence in Tucson soon made him known throughout the state and the entire southwest. He was early elected president of the Medical and Surgical Association of the Southwest—a distinction that has fallen to no other Tucson physician. He was a Fellow of the American College of Surgeons and was captain in the medical corps, 1917-1918.

His interest in his chosen work was distinctly professional and scientific than merely commercial. To those who could and should pay, he displayed a commendable persistency. But he would spend days—if necessary—ferreting out obscure cases, when he knew not only that there would be absolutely no remuneration, but that the costs for necessary laboratory tests—freely ordered—would fall upon him. He was a natural investigator—a most valuable man for any group or community. His professional life, covering a period of 27 years, was one that all of us might envy.

He held high the standards and reputation of the profession. His competitors knew that he would never take the least advantage of them in any way. In fact, he would go out of his way to prevent an injustice being done to others. He had very little patience with those who "cut across corners" in the matter of ethics.

He had a large and loyal clientele. The most of his patients considered him not only a trained and successful medical and surgical advisor but an intimate personal friend as well. He had the happy faculty of meeting and mingling with people. He probably had a wider general acquaintance than any of the profession in Tucson.

His most outstanding traits of character seemed to be his innate honesty and absolute sincerity. No one needed to accept his views in toto, to be profoundly impressed by these qualities. He acted upon his convictions.

While a busy man, yet his interest and activities were not confined solely to his profession. He was a loyal, enterprising and substantial citizen—interested in every measure that might benefit the community. Especially did he have a genuine interest in education and educational institutions.

The Tucson medical fraternity has in the past suffered the loss of able and prominent members. Quite a number of such have met sudden death by accident. Several have had very brief acute ailments. But for months Dr. Butler's critical condition has cast a gloom over the entire profession, especially his more immediate associates. To my knowledge, nothing has approached this in 35 years. We have not been ourselves.

To the younger members of the profession, particularly, Dr. Butler's thorough preparation for, and devotion to, his profession; his unquestioned honesty, sincerity and integrity; his unusual fairness and squareness; his extreme friendliness and readiness to assist a fellow practitioner, as well as his record as a courageous and valuable citizen—all this should serve both as a worthy example for emulation and a source of inspiration.

DR. ALBERT E. LAUSON

Funeral services for Dr. Albert E. Lawson, 60, who died at the family home in Anthony, Tuesday afternoon, will be held at the Peak-Hagedorn chapel Thursday at 10 a. m. The Rev. C. A. Twining will officiate.

Dr. Lawson had been ill for about a year. Born in Galesville, Wis., he received his early education in Valparaiso, Ind. He graduated from the College of Physicians and Surgeons in Chicago, earning his own way through the institution. For 12 years he was an instructor of anatomy in the Milwaukee College of Physicians and Surgeons.

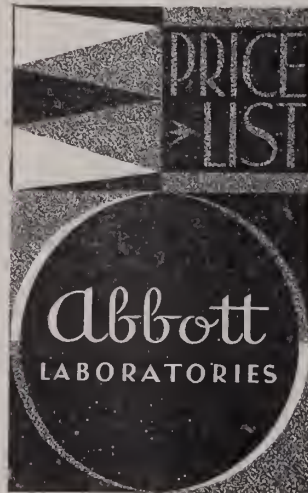
He also was a practicing physician in Milwaukee until his health failed. In 1904 he moved to the valley and located at Anthony. During his long residence there he took an active part in all movements for the improvement of the community.

Surviving him are his widow, Mrs. Gertrude V. Lawson, and a daughter, Helen C. Lawson, both of Anthony.

(El Paso Herald)

NEW ABBOTT-D.R.L.-MILLIKEN PRICE LIST

One of the most handsome and modern price lists ever published by a pharmaceutical house is now being distributed by the Abbott Laboratories.



This list, beautifully designed and printed in attractive colors, contains 176 pages. Included in this price list, will be found not only the principal products of the Abbott Laboratories and the Dermatological Research Laboratories but also a list of the most important preparations of the House of John T. Milliken & Co. of St. Louis, which was acquired by The Abbott Laboratories on January 3, 1928. With the addition of this line The Abbott

Laboratories is now prepared to supply standard pharmaceuticals of the finest quality, as well as the fine chemical and other specialties which have been the distinguishing feature of this house.

The Great War led to a radical change in The Abbott Laboratories. For some years prior to 1916, a limited amount of research had been conducted, and a few chemical products were manufactured in its Ravenswood plant. The nucleus of a real chemical staff had been assembled. In 1916, Dr. H. D. Dakin, an English Chemist, co-operating with Dr. Alexis Carrel, in France, in the study of septic wounds, discovered the remarkable germicidal power of the chloramines. His paper was published in the British Medical Journal. This led to the manufacture of Chlorazene by The Abbott Laboratories—the first firm to produce and introduce this substance in America. Soon after followed Dichloraz-

mine—T and Chlorcosane, also developed by Doctor Dakin. These three substances are now official.

Since then The Abbott Laboratories has taken front rank in research in synthetic medicinals. When we entered the war, it was assigned the task of producing some of the more important medicinals heretofore made only in Germany, such as Barbitol, Procaine and Cincophen. Soon it added Anesthesin, Acriflavine, Neutral Acriflavine and Neocinchophen. From the very beginning of its venture into the chemical field, original research, looking to the discovery of new and valuable products, has been part of the program of the house, and the result is the introduction of a number of valuable new synthetic drugs, among them Butyn, Butesin and Butesin Picrate, Neonol and Metaphen.

In the hands of The Abbott Laboratories and under the direction of Dr. George W. Raiziss, the "D. R. L." has made steady progress, not only in the production of large quantities of the arsphenamines of constantly improving quality; but also in fine research leading to the creation of valuable new synthetics, such as Metaphen, Bsimarsen and Salihexin.

Still another forward step was the moving of The Abbott Laboratories from Ravenswood, in Chicago, to the splendid new plant, consisting of a group of fourteen buildings on a tract of twenty-five acres, located at North Chicago, Illinois.

The latest step forward is the acquisition of Miliken, already referred to. Miliken products have an excellent reputation, which will be enhanced by the Abbott policy of backing its preparations by constructive research, looking toward constant improvement—the abandonment of things that are weak or useless, and insistence upon bringing the line into accord with the changing spirit of the times. Abbott gives this assurance to its friends that in broadening the base upon which its business structure rests, by the addition of a general line, it is going forward, not backward. The fundamental policies of the house will be adhered to for the evolution of better as well as bigger things.

The Abbott Laboratories is built upon research, and greater pride is taken in the scientific achievements of the house than in its financial success. As stated by the President of the firm, Alfred S. Burdick, M. D., "We believe that the future of this institution must rest upon sound scientific work. Our policy, therefore, may be epitomized as follows:

1. Research is fundamental and vital. Without it real progress is impossible—in spite of occasional evanescent success.
2. Research in a business organization should be co-ordinated with research in our universities, hospitals and other institutions.
3. Specialize. This means the direction of intense effort into certain important channels. The result should be the evolution of real specialties of outstanding merit, which will achieve and deserve success.
4. Anticipate the currents of thought by watching the trends. Never in the history of medicine has there been such a ferment of intellectual activity. Look ahead. Encourage those about you to do this.
5. Work with others—and particularly with the leaders in the medical profession and the industry. Don't resent adverse criticism. If it is sound, bring yourself into line.
6. Advertise. If a product possesses outstanding merit, don't grudge the money necessary to bring it to the attention of prospective users."

A copy of this new Price List may be obtained by addressing The Abbott Laboratories, North Chicago, Ill.

AN INTRODUCTION TO GASTROENTEROLOGY

by Walter C. Alvarez, M.D., Associate Professor of Medicine, University of Minnesota (The Mayo Foundation); with 100 illustrations; Second Edition; Paul B. Hoeber Inc.; New York; 1928; \$7.50.

Many physiological problems should be worked over from all experimental aspects with the advantages of modern technic and modern conceptions. Dr. Alvarez is doing this for the mechanics of the digestive tract. This is a subject that was once regarded as nearly settled and stable. Alvarez's work, however, shows definitely that we must adjust our conceptions of many of the more important mechanical functions of the digestive tract; some of our older ideas are simply established with greater permanency through his researches.

One conception which, apparently, makes little difference to the clinician but on which most of us have been in error, is that the initiation of the intestinal contractions are in muscle tissue rather than in nerve. We must establish in our minds the concept of a gradient, and then apply it to various parts of the alimentary tract. The engineers have made free use of the term gradient, and it seems perfectly natural that it should be applied to physiological questions.

An incline is a gradient. A pyramid wall is a gradient. The business of a corporation or physician increases year by year: the graph which might be constructed to indicate the gradual increase would be a gradient. A gradient may be up or down, of any per cent. So many things go by gradients.

Applying the gradient idea to the alimentary canal: The contraction waves of the upper part of the bowel, says Alvarez, are more frequent and stronger in the jejunum than in the ileum. There is probably a more or less gradual gradient of the activity from the upper part of the small bowel down to the lower part of the small bowel. This is necessary, it is easy to see, for the passage of material in the correct direction through the intestines. Probably the same principle applies to the fundus of the stomach, to the pars pylorica and to the colon. The pacemaker in each of the divisions named above is probably in the muscle anatomically nearest the mouth.

Another than the normal area of any part may become pacemaker for a time by virtue of one or another type of irritation. A peristaltic wave may arise at a lower part of the intestine; it travels in both directions; but normally it is more effective in the downward than in the upward direction. In case of obstructions or interferences in the passage of the fecal matter, the upper peristalsis may become hyperactive and may lead to a development of nausea and vomiting.

Alvarez's work upsets another old idea by showing that, in a large percentage of the cases of constipation, the bulky diet is incorrect treatment; it should be bulkless instead. Fluid material passes down the bowel much easier than do the solid masses, and will often pass along leaving the masses behind.

Dr. Alvarez is an enthusiast. Otherwise he could not and would not have done the work he has. Any book of 450 pages requires a tremendous amount of work; one having a large bibliography to which frequent references are made, means a still greater amount of work; add to this an endless amount of laboratory experimentation and clinical investigations of the most painstaking sort and, if one has a good imagination, he may be able to realize the colossal task the author has performed. Such a work is an oasis of delight in the reviewer's work.

There are 50 pages of bibliography, and every

page of the text has many references to the literature. The author has attempted to include all the gastrointestinal literature. The text is a report of the author's researchs in the literature, clinic and laboratory. He advances theories when obliged to do so to make clear the explanation of his findings. Unquestionably, Dr. Alvarez will be wrong in some of his contentions—every enthusiast is. It is thoroughly evident that the author knows this and is not afraid to change when proved wrong. In the main, however, the findings and conclusions are rational, and will doubtless be further substantiated.

There are many suggestions, regarding therapy of various and sundry pathologic conditions of the alimentary tract, with which the clinician should familiarize himself. They are often diametrically opposite to the old conceptions which have, all too often, been tried and found wanting.

The pictures of many leaders who have contributed to the science of gastroenterology form an attractive feature of the book. The author has a clear, concise style, rarely using more words than is necessary. There are places, however, where a careful critic would have cut out certain unnecessary words. For example: In the first line of the preface to the first edition, the word "some" in no wise strengthens the sentence. There are relatively few similar instances.

There is the usual error of using the word "people" where the word "persons" seems preferable; and in a number of places the word "or" is used where "to" is plainly meant. For example: On page 159, the 4th line from the top, there is the expression "10 or 20 years" where, clearly, "to" in place of "or" would be the accurate expression.

The reviewer found no misspelled words. The work of the publisher is painstaking and up to the usual Hoeber standard.

Any clinician interested in gastroenterology will find valuable suggestions and unlimited enthusiasm from a reading of the book. I recommend it for a position upon the physician's five-foot bookshelf—which should be just far enough away to be reached by the outstretched right (either is right) hand.

THE NEW MEXICO MEDICAL SOCIETY Forty-Sixth Annual Meeting, At Albuquerque, N. M., May 10-12, 1928

MAY 10, 1928

The forty-sixth annual session of the New Mexico Medical Society, held at Albuquerque, N. M., was formally opened at 8 a. m. on Thursday, May 10, 1928, when a meeting of the Council was called to order by the President, Dr. C. B. Elliott (Raton), in the assembly room of the Alvarado Hotel.

There were present: Ex-officio members: Dr. C. B. Elliott (Raton) and Dr. L. B. Cohenour (Albuquerque), president and secretary-treasurer respectively of the Society; and the following members: Dr. C. Mulky (Albuquerque); Dr. R. C. Brown (Santa Fe) and Dr. W. T. Joyner (Roswell).

The financial report of the secretary-treasurer was presented and read by him and approved, as follows:

Gentlemen: I herewith submit a report of the financial affairs of the New Mexico Society for the term ending this date:

Receipts:

Cash on hand and received from Dr.
C. M. Yater., May 18, '27\$ 424.05
Delinquent dues from eleven members for
year 1927 55.00
Annual dues for 1928, 206 members 1030.00

TOTAL receipts\$1509.05

Disbursements:

Reporter for 1927 meeting\$ 144.00
Secretary's salary, 1927 300.00
Southwestern Medicine 448.00

TOTAL disbursements, by Dr. C. M. Yater\$ 892.00
Treasurer's bond for 1927 5.00
Southwestern Medicine for eleven members 22.00
Reimburse Dr. Cohenour for express charges 3.22
Radio Supply Co. (filing cabinet etc.) 49.35
Stationery and supplies 42.50
Lewis Printing Co. (500 stamped envelopes) 13.50
Directory of American Medical Ass'n. 12.00
Lewis Printing Co. (250 membership cards) 3.75
Reporter of State meeting, advanced half of fee 75.00
\$ 226.32

Balance, cash in bank on this date\$1282.73

Outstanding Indebtedness:

Southwestern Medicine (dues for 206 members for 1928)\$ 412.00
Secretary's salary for 1928 300.00
Reporter for 1928 meeting—balance of fee 75.00
Medical Directory for 1928 12.00
Treasurer's bond for 1928 5.00
Approximate total\$ 804.00

Respectfully submitted,

(Signed) **L. B. COHENOUR,**
Secretary-Treasurer.

Dr. Cohenour submitted the application of Dr. C. H. Gillenthein, Valmore, N. M., for membership in the society, which was referred to the Board of Censors with recommendation for favorable action.

No further business coming before the meeting, adjournment followed at 9 a. m.

House of Delegates

Immediately after adjournment of the Council, a meeting of the House of Delegates was called to order by President Elliott, the following members responding to the roll-call:

Bernalillo County—Drs. L. B. Cohenour, C. Mulky and E. C. Mathews (all Albuquerque).

Chaves County—Dr. W. T. Joyner (Roswell).

Colfax County—Dr. C. B. Elliott (Raton).

Dona Ana County—Dr. Dwight Allison (Las Cruces).

Santa Fe County—Dr. R. C. Brown (Santa Fe).

Union County—Dr. C. F. Milligan (Clayton). (Representing Dr. J. P. Powell). Later, Dr. J. P. Powell.

Report of the secretary-treasurer, Dr. L. B. Cohenour (Albuquerque), was read and approved, as follows:

House of Delegates,
New Mexico Medical Society,
Albuquerque, N. M.

Gentlemen:—I hereby render a report of the affairs of the office of Secretary-Treasurer for the term ending with this session

At the last meeting, held at Carlsbad, N. M., May 9, 1927, there were several members suspended for non-payment of dues and, immediately following this, eleven were reinstated.

Members in the Society at this time are as follows:

Bernalillo County 39
Chaves County 18
Colfax County 16
Curry County 9
Dona Ana County 13
Eddy County 11
Grant County 12
San Miguel County 8
Luna County 5

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GRASS HAYFEVER begins about the time *tree hayfever* ends, viz. May 15th, and need not be confused with the earlier appearing and sometimes overlapping *tree hayfever*.

WEED HAYFEVER—August to frost—is unrelated to the previously occurring *grass hayfever* and is occasioned, according to the locality, by such late pollinating plants as the Ragweeds—Russian Thistle—Western Water Hemp—Carelessweed—or Sage Brush.

LIST of pollens for any section—any season—with commentary circular discussing the treatment of hayfever by *preseasonal* or *coseasonal* method, with respective schedules of dosage—sent on request.

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McKinley County	16
Santa Fe County	20
Union County	11
Members at Large	41

Total in good standing on this date 206

One application for membership was received. This shows a loss of 19 members since the last report—due to the following reasons: Death, 6; non-payment of dues, 13.

The following members have died since the last report was made:

Dr. Malcolm Montgomery Crocker, Lordsburg, N. M. May 17, 1927, perforated duodenal ulcer.

Dr. W. T. Murphy, Albuquerque, N. M. May 16, 1927, pulmonary tuberculosis.

Dr. F. F. Fadeley, Virginia. Oct. 4, 1927, carcinoma of rectum.

Dr. D. C. Dodds, Albuquerque, N. M. Dec. 16, 1927, cerebral hemorrhage.

Dr. J. A. Massie, Santa Fe, N.M. Feb. 21, 1928, heart disease.

Dr. O. R. Haymaker, Roswell, N.M. February, 1928, following operation.

Dr. M. D. Welsh, Dawson, N.M. March 1, 1928.

Dr. J. B. Hughes, Anthony, N.M. April 3, 1928.

Respectfully submitted,

(Signed) L. B. COHENOUR,
Secretary-Treasurer.

The minutes of the Council meeting held on May 10, 1928, were read by the secretary, and approved.

The application of Dr. C. H. Gillenthein, Valmore, N.M., for membership in the Society, was presented, with recommendation of the Board of Censors that it be approved. The application was favorably passed by unanimous vote.

The question of physicians' group liability insurance, which was referred to a committee for investigation and report, at the meeting last year, was brought up for discussion, Dr. Mulky, a member of the committee, reporting that the matter had been gone into thoroughly and, after much discussion with insurance representatives and correspondence, the proposition submitted by the United States Fidelity and Guaranty Company, Denver, Colo., seemed to offer the most reasonable and best inducements.

The Secretary read a letter received from said company, which quoted the following rates:

\$ 5,000-\$15,000 limits—
Minimum 25 men, cost \$22.50
Minimum 50 men, cost \$20.00
Minimum 100 men, cost \$17.00

\$10,000-\$30,000 limits—
Minimum 25 men, cost \$27.50
Minimum 50 men, cost \$25.00
Minimum 100 men, cost \$20.00

After considerable discussion pro and con, motion was made by Dr. W. T. Joyner (Roswell) that further action be postponed until the next meeting of the House of Delegates, at which it was anticipated there would be a larger attendance. The motion was seconded by Dr. R. C. Brown (Santa Fe) and carried.

The secretary read a telegram of felicitation and good wishes from the Iowa State Medical Society in annual session.

The secretary was instructed to send an appropriate telegram in reply.

The president appointed the following committees:

Necrology: Dr. L. B. Cohenour, (Albuquerque), Dr. R. C. Brown, (Santa Fe), Dr. C. F. Milligan, (Clayton).

Resolutions: Dr. W. T. Joyner, (Roswell), Dr. Dwight Allison, (Las Cruces), Dr. J. P. Powell, (Clayton).

Adjournment followed at 9:45 a. m.

General Assembly

The session of the General Assembly was called

to order by the president, Dr. C. B. Elliott (Raton). The room was well filled when the session opened, approximately seventy-five physicians having already registered at this time.

After the invocation by Dean H. R. O'Malley, of Albuquerque, Dr. P. G. Cornish, Jr., president of the Bernalillo County Medical Society, welcomed the visiting physicians in a few choice remarks: "Mr. President and Members of the State Medical Society: Albuquerque is always glad to entertain any of the medical profession. In behalf of the Bernalillo County Medical Society I want to extend our best welcome to you. We hope that if, at any time, you need assistance in amusing yourselves, or if there is anything at all that you want to see, or any place that you want to go, you will feel free to call upon any of the members of this Society and ask them for anything you want. The Bernalillo County Medical Society is more or less working out at this meeting for a large Southwestern meeting which we hope to have here in November and we want you all to have a good time, enjoy yourselves, and come back in the fall to that meeting."

Dr. Dwight Allison (Las Cruces), in response, stated: "We are very glad to come to Albuquerque. We always enjoy seeing you; your welcome is always spontaneous. We always have a good time when we come here and I notice that the attendance is always a little better when our meetings are held here than it is anywhere else in the State. That shows our appreciation and I hope we will show you by our presence here in November, how much we appreciate the invitation to attend the Southwestern meeting."

President Elliott, in introducing President-Elect Dr. T. P. Martin, said: "We are very fortunate indeed in the man selected this year for president. He is a man who is not only thoroughly known throughout this state, but is known throughout other states as well. He is from the town in this state that has the distinction of having had the first English physician in this part of the country—Dr. Robinson, who located in Taos in 1806. Dr. Martin has been practicing in the state for over forty years. The Society is indeed honored to have such a man as its president. I will ask Dr. Miller (Clovis) to escort the President-Elect to the chair.

Amid the applause, President-Elect Martin was escorted to the platform, and then delivered his inaugural address.

The doctor deviated from the usual custom of having a prepared written address and, instead, gave an extemporaneous talk, in part as follows:

"My talk this morning will not be along medical lines. I have had a great many suggestions as to what the fraternity needs in New Mexico. As individuals I presume we all have insurance protective measures and as doctors we should have liability insurance. After investigation by our secretary, and correspondence with the various companies, we find we can get some high grade insurance companies who will take us on under group insurance at a cost of \$17.50 per member, if we can get one hundred members, with limit from \$5,000 to \$15,000. I think it would be a very wise thing for the whole Society to take this insurance as a group.

"Two years ago, when our legislators and senators were in session at Santa Fe, we tried to obtain hearings on a Medical Arts Bill but could get nowhere—we could not even get the bill out of the committee. We had hearings before the senate committee and hearings before the house committee, but without avail. One member, who was very much opposed to it, said that he did not believe in doctors anyway, that his wife had been injured and he had three doctors attend her, but

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Journal of Amer. Med. Ass'n.

"Dr. Sutton is one of the most indefatigable of American dermatologists; a treatise on dermatology naturally comes as a sequence of his labors. He has been an independent investigator, but his work has been constructive and not iconoclastic. As would be expected, therefore, his treatise, while showing his independence of view, is along conservative lines, and is free from the unpardonable sin in a textbook of being controversial. This work is well done and it is highly recommended for study to the practitioner who would obtain a grasp of the subject of dermatology as a whole, as distinguished from a smattering knowledge of a few dermatoses."

British Journal of Dermatology:

"Dr. Sutton's book is so well known and appreciated that nothing is wanting to recommend this new edition to those familiar with the earlier works. The illustrations are so numerous as to entitle the work to be classified as an atlas of skin diseases; in fact, there are few atlases which contain so complete a pictorial record of the whole field of dermatology. The author and publishers are to be congratulated not only on having secured such a large collection but on the excellence of their reproduction."

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none of them ever did her any good, so he was opposed to the profession and to any bill for it. We met opposition like this on one hand, and, on the other hand, those who might have been favorable and helped us, said, when approached, that they did not know anything about the bill, but if Dr. So-and-so will say it is all right, I will vote for it.' Drs. Joyner, Brown, Luckett and I spent almost a day and a night getting out telegrams requesting the doctors to get in touch with their members, and yet a lot of them would not even take the trouble to send in a telegram. If we want to get any constructive legislation, anything that will define what the practice of medicine means any substantial base upon which a judge can render a decision in our favor, we have to tune up and make our laws better. And if we want to get any legislation at all, we will have to go to the legislature at the beginning of the session and not wait until towards the close of the session, when politics is always played and not much accomplished. We have simply got to put our shoulders to the wheel, or we will be blown up.

"Last year at our annual meeting, Dr. Elliott started what I think is the most valuable piece of literature that we have ever had at a Society meeting. He traced the medical history of this state from its beginning up to a few years ago, but his information was not complete. As a fraternity of professional men, we should take pride in the history of our organization. We have a lot of men who came to New Mexico years ago—men who did not come on Pullman trains, or in Buicks or Packards or other machines—but some of them came on jackasses and some on mustangs. After the fine data Dr. Elliott has collected, we should have someone try to trace back some of these old physicians who represented this Society in the days gone by, who, many times when they probably did not have a dollar in the world, yet went out to the American Medical Association and kented us on the map. We should keep a record of the history of this Society and I hope the Society will have a Historical Committee to gather this data now. The longer things of this kind are deferred, the harder it is to obtain accurate records.

"The next point I want to take up is in regard to the State Laboratory. It is a wonderful institution. I understand the Laboratory made between 35,000 and 37,000 examinations during the past year. It is very crowded for quarters and also for funds. The enlargement of the laboratory is absolutely essential if it is to continue to do this work for us and which we are doing for the people. Whether or not we can get additional space at the University of New Mexico, where the laboratory is now located, I do not know, but we, as members of the fraternity, must get back of this laboratory and keep it alive. We are all paying revenue to the state, paying taxes, and if we cannot get more room here at the University, let us make the state provide us ample quarters in the new building to be erected at Santa Fe. I do not know how Albuquerque will feel about that, but if you want it kept here, let's make it a better and bigger laboratory. If you do not want it, let's take it up at the capitol and make the state furnish us with adequate quarters.

"Another thing I have been asked to speak about is public nursing. The public nursing system, as we have it today, is absolutely paying all attention to the maternity and paternal cases. We are not looking after the general health and general welfare of our community, as we should be doing, instead of specializing on certain kinds of work. However, I understand that this work is being done under the Sheppard-Towner fund allotment and it is a wonderful work. The appropriation for this work will run out soon and we will need funds

to continue it, but we also need more general nurses, and that is the point I want to emphasize—that we need more nurses for general nursing all over the state.

"I want to thank you for electing me President of the Society and I will try to serve you to the best of my ability."

The first scientific paper of the morning was read by Dr. F. H. Crail, of East Las Vegas, who gave an interesting account and description of conditions and opportunities for post-graduate studies in Vienna, where he spent considerable time last summer. The Doctor stated that, from what he saw, the general methods of procedure in surgery are much alike in the various countries of continental Europe, so that, if one became familiar with clinics of Vienna, for example, he would have a pretty good idea of how the profession functions throughout most of Europe.

Discussion was participated in by Dr. O. S. Fowler (Denver), who stressed the point that, in his opinion, too much time is being given to surgical technic and too little to surgical physiology.

Dr. C. W. Thompson, Pueblo, Colorado, read a very interesting paper on the subject "The Contributions of Psychiatry to Medicine," which will be published in an early issue of SOUTHWESTERN MEDICINE.

Dr. O. S. Fowler, Denver, Colorado, followed with a paper entitled "Tongues and Edema," in which he recalled the fact that the tongue is an index or barometer of the patient's physical condition. Illustrating his talk with lantern slides, Dr. Fowler emphasized the importance of a thorough diagnosis of cases before operation.

Discussion was participated in by Drs. Crum Epler, Pueblo, Colo., who complimented Dr. Fowler upon his paper and voiced his concurrence in the method of giving unlimited amounts of fluids to clear edemas of kidney origin. Dr. G. V. Brindley, Temple, Texas, also expressed his approval of Dr. Fowler's paper, stating that observation is one of the most important points the physician must learn. In closing the discussion Dr. Fowler stated that, in his opinion, surgery is being put upon too high a pedestal and given undue importance to-day; that to keep well, a person weighing around 180 pounds should drink at least fifteen glasses of liquids a day; for one weighing around 115 or 120 pounds, the amount of fluids should be from nine to ten glasses per day, part of it fruit acids, such as oranges, lemons, etc.

Adjournment for luncheon followed the discussion of Dr. Fowler's paper.

The first paper of the afternoon session was that of Dr. G. V. Brindley, Temple, Texas, on "Cancer of the Rectum," in which the fact was brought out that one patient out of every 545 admitted for general examination, has a cancer of the rectum. The Doctor explained that carcinoma of the large bowel has a predilection to three of its separate segments; that the rectum is the part most frequently involved, the sigmoid is next and the cecum, with the adjacent ascending colon, comes third. Ninety per cent of all cancers of the large bowel are in these three parts, with approximately sixty per cent or more in the rectum. Treatment of cancer of the rectum can be considered from the standpoint of curability and palliation, radical excision being the only thing that gives much prospect of a permanent cure—that, by the use of cautery, a radical excision of the malignant rectum can be performed with ease and dispatch. Colostomy, radium and x-ray are the chief agencies of palliation.

In opening the discussion, Dr. Sanford Withers, Denver, Colo., advised physicians to be suspicious of, and expect, a cancer of the rectum every time a patient complains of passing blood. He advocat-

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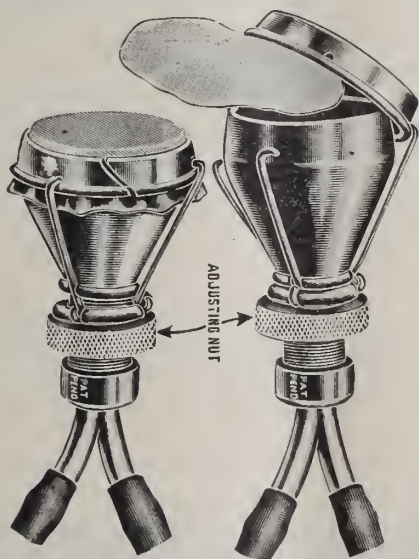
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ed colostomy as the most essential part of treatment of cancer of the rectum, stating that he believed it helped to allow one to determine whether the growth is operable or inoperable. He cited a report of 58 cases of inoperable cancer treated by x-ray and radium which he made a few years ago, 32 of which are still living more than two years since starting treatment, 14 without recurrence of malignancy, all living and well.

Dr. Crum Epler, Pueblo, Colo., stated that in his opinion, the only treatment for cancer is the knife. "When patients have procrastinated so long as to be inoperable (but it is a matter of judgment on the part of the surgeon as to whether these cases are operable or not), it is better to refer them to a competent radiologist than to attempt to operate."

Dr. Brindley, in closing the discussion, stated that he is a great believer in radio therapy and hoped that x-ray and radium would eventually cure radical cancer; that he believes it cures permanent in a very few cases, but that a period of two years is an insufficient length of time to permit of the use of the word "cure" in connection with these cases.

Dr. Wilburn Smith, Los Angeles, Cal., presented a paper entitled "The Superior Mesenteric Thrombosis," stating that "this condition is not common, for, since the first description in 1847, about 500 cases have been described with only 35 of these surviving the attack, whether operated or not, thus giving a mortality of 93 per cent. Occlusion of the mesenteric artery is usually from an embolus, followed by thrombosis. In the mesenteric vein it is thrombosis from the start. The lesions produced are variable from slight congestion to marked ulceration and extensive gangrene. (1) The occlusion may be followed by collateral circulation either of a temporary or permanent nature. (2) The occlusion may be followed by cessation of function yet the life of the intestine be intact. (3) It may be an infarct with death of a variable amount of the small intestine."

In discussing this paper, Dr. O. S. Fowler (Denver, Colo.) mentioned food poisoning in relation to mesenteric thrombosis, stating that he had seen three cases following shell-fish poisoning, and, in his opinion, shell fish or sea fish should not be eaten in the middle of the continent.

Dr. F. H. Crail, East Las Vegas, expressed his appreciation of Dr. Smith's paper and cited two cases of mesenteric thrombosis under his care, both of which died. In the first case, the patient was sick with "la grippe," followed by sinus infection, and then taken suddenly ill with acute abdominal pain and vomiting. The other case, an elderly man, had had a regurgitant murmur for many years and was taken sick, after eating a light supper, with what was thought to be acute indigestion. At the end of the third day, when Dr. Crail first saw him he was vomiting and having very light bowel movements but with dark, ill-smelling material coming with every enema; temperature subnormal. Operation was performed but patient died within two days.

In closing the discussion, Dr. Smith stated he wanted to emphasize the remarks made by Dr. Fowler in regard to fish poisoning, which was the cause of many cases.

Dr. A. J. Markley, Denver, Colo., read a paper entitled "The significance of Certain Eruptive Disorders of the Skin, with Special Reference to the Toxic Erythemas, Purpura, Urticaria, Eczema and Psoriasis," describing and commenting on the different conditions, in conclusion stating: "The problem for solution when confronted by any eruptive dermatosis is simply this: Is this a primary disease of the skin which can be dealt

with by local measures, or is it merely a symptom, and if so, what? The successful solution of that problem will mean the comfort, the peace of mind, and often the well-being of many patients."

Two cases were presented for examination by Dr. Markley, one of which he described as a skin disorder, definitely and wholly systemic, more or less associated to chronic infections. The other, a case of round dry scales or crusts, was described as possibly due to a nervous disorder, causing functional disturbance in the alimentary tract.

Dr. Crum Epler, Pueblo, Colo., in an extremely interesting paper entitled "Some of the Symptomatic Disturbances in Other Organs that are referable to the Gall-Bladder," brought out the following points: (1) Cholecystitis is a very common disease, manifested by symptoms in other organs, especially the stomach. (2) A long and persistent gastric syndrome, especially if free from acute pain associated with the taking of food, warrants a thorough gall-bladder investigation. (3) The Ewald meal, the duodenal tube and the cholecystogram are indispensable methods of diagnosis. (4) The history is paramount and, together with physical examination and other laboratory methods, is of the greatest importance.

In discussing this paper, Dr. G. V. Brindley (Temple, Texas), reported that, after an analysis of the histories of a series of 200 gall-bladder cases, he had come to the conclusion the gall-bladder disease is a sequence to some other infection and that by going far back into the history, it will help somewhat to cinch the diagnosis.

Dr. O. S. Fowler (Denver, Colo.), expressed the opinion that pain in the kidney which will be severe while the kidney is out of position, would be alleviated when the patient lies down on his back, and that many things which give pretty complete obstruction of the kidney, can be relieved by change of posture of the individual. He also stressed the importance of careful histories in these cases.

In closing the discussion, Dr. Epler told of cases of renal colic, in which patients had been advised to lay a chair down on the floor, lie with head on the chair and shoulders on the floor and roll around, in an effort to get relief. In many of these particular types, relief is afforded in this manner. These displaced kidneys cause pain until the patient moves into such a position that it gets the kidney back to the place it belongs.

Adjournment followed the discussion of Dr. Epler's paper.

FRIDAY, MAY 11 1928.

At a meeting of the House of Delegates, called to order by the president, Dr. T. P. Martin (Taos), at 9 a. m., the following members were present:

Bernalillo County: Drs. C. Mulky, L. B. Cohenour, E. C. Matthews, J. R. Van Atta, (all Albuquerque).

Chaves: Drs. R. L. Bradley; H. A. Ingalls; (both Roswell).

Colfax: Dr. C. B. Elliott (Raton).
Dona Ana: Dr. Dwight Allison (Las Cruces).
Eddy: Dr. M. B. Culpepper, (Carlsbad).
San Miguel: Dr. H. W. Gibbs, (Las Vegas).
Santa Fe: Dr. Robert Brown, (Santa Fe).
Union: Dr. J. P. Powell.

Minutes of the meeting held May 10th were read and approved.

The secretary, Dr. Cohenour, read a telegram from Dr. F. D. Vickers expressing regret at his inability to attend on account of illness in his family.

The secretary read a letter from the Woman's Auxiliary to the Bernalillo County Medical Society, to the effect that, at a recent meeting of the Auxiliary, it was decided to make the Society a state-

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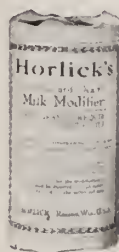
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wide organization, thus rendering eligible to membership the wives of the members of the State Society from all counties where there is no local organization of the Auxiliary, and requesting approval of the House of Delegates to this change. The action was approved.

Dr. S. L. Burton (Albuquerque) suggested that a committee be appointed to revise the Constitution and By-Laws of the Society, and also proposed regulations covering the term of appointment of members of the State Examining Board.

Discussion was entered into by Drs. W. T. Joyner (Roswell) and Dwight Allison (Las Cruces), who stated that, several years ago, the matter of revising the Constitution and By-Laws had been brought up in connection with model forms sent out by the American Medical Association, which it wished State Societies to adopt. However, these were not deemed suitable for the Society. Dr. Joyner stated that, as far as membership on the State Examining Board was concerned, the Society has no authority, such appointments being made by the Governor.

Dr. R. L. Bradley (Roswell) made motion that the Chair appoint a committee of three, to look over the By-Laws and make recommendation for such changes as might be deemed advisable, to report at the next annual meeting. This was seconded and carried, the President appointing as such committee: Drs. Dwight Allison (Las Cruces); Robert Brown, (Santa Fe) and E. E. Royer (Albuquerque).

Dr. Dwight Allison (Las Cruces) requested that announcement be made that members who could suggest changes in the By-Laws make same to the Committee.

Dr. R. L. Bradley (Roswell) spoke on the illegal practice of medicine being carried on in his county, and methods to eradicate this evil were discussed by Drs. Joyner and Powell, the most feasible of which seemed to be the annual registration of licensed physicians by the State.

No definite action was taken and the meeting adjourned at 9:25 a. m.

Scientific Session.

The first paper of the morning session, read by Dr. H. W. Snyder, Denver, Colo., was entitled "Diagnosis and Treatment of Marie-Strumpell Osteo-Arthritis," illustrated by lantern slides. The Doctor stated that "this is a chronic progressive disease of the spine, beginning with painful stiffness and terminating in complete rigidity and a variable degree of deformity, chiefly affecting men between twenty and forty years of age. Today we recognize three types of spondylitis deformans:

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Dr. Snyder's paper was in connection with the second type.

Dr. James F. Percy, Los Angeles, Cal., in discussing the paper, cited the case of a woman about thirty years of age, who had been treated by him

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about a year and a half ago for advanced cancer of the breast, though not yet broken down, who also had this kind of miserable arthritis. The Doctor stated that he was not interested in the arthritis side of the case and intended to turn it over to someone else for that after she got through with the cancer operation, but she got well of the arthritis, and yet she had the lumping of the spine about which Dr. Snyder spoke. In some of these cases much relief is obtained by removing the colon. Dr. Smith, in Los Angeles, has done much work along this line.

Questions were asked Dr. Snyder in regard to the autogenous vaccines used in the treatment of these cases, and, in closing the discussion, Dr. Snyder stated that he has the laboratory do the work and personally knew hardly anything about it.

Dr. H. A. Miller (Clovis) in a paper entitled "A Simple Technic for the Estimation of Blood Urea," cited a short, easy method for obtaining a blood retention index, stating that, "We make no claim for originality in this method, but use the Hensch-Aldrich technic, or mercury-combining power of the blood serum after being deproteinized. The only objection to this method is the comparatively large amount of blood necessary for the test, viz., 8 to 10 c.c."

Dr. O. S. Fowler (Denver), discussed the paper, voicing his belief that in 50 or 75 years we will not only know all about the chemistry of the blood, but also the chemistry of the cells.


Dr. Sanford Withers, Denver, delivered an extemporaneous address on the subject "Principles of the Treatment of Cancer." The talk was illustrated with lantern slides, Dr. Withers stressing

the fact that many cases of cancer which it would be impossible to cure by operation, can be cured by the proper use of x-ray and radium. He defined cancer as a group of body cells which fail to cease growing and stated that ten of every one hundred men and twenty of every one hundred women die of cancer, though cancer in the human being has not been found to be hereditary, as is generally supposed. He quoted records to prove that a person whose parents had died of cancer was only three-fourths as liable to have cancer as any other person and that insurance companies do not now ask the applicant for insurance whether his parents have had cancer. Dr. Withers advanced a complete examination, explaining that frequently cancer occurs simultaneously in two or more organs of the body. Pre-operative use of the x-ray was recommended as being of immense value in limiting the recurrence of cancer, and, frequently, use of the x-ray before operating changes the case from one of difficult operability to one of considerable ease.

Adjournment for luncheon followed Dr. Withers' address.

Dr. James F. Percy, Los Angeles, Cal., was the first speaker of the afternoon session and his brilliant discourse on "Cautery Surgery in Carcinoma above the Clavicle", which was illustrated by a number of slides, elicited considerable discussion and comment.

In discussing the addresses of Dr. Withers and Dr. Percy, Dr. Crum Epler, (Pueblo, Colo.,) said that he took exception to the statements made relative to the "clinical cure" and that in his opinion the word "cure" should be left out. However, this kind of work is very essential. "As far



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as Dr. Percy's claims for his cautery are concerned," Dr. Epler continued, "I desire to give him credit insofar as my ability to use is concerned. I do not happen to have attained such wonderful results, but neither have I attained the skill that he has; nevertheless, I can say that it is a very wonderful instrument in proper hands. I feel that this is a matter of salesmanship and the general practitioner is presumed to be the clearing house for the specialist, and if the specialist is as good a salesman as he is a specialist, there will be fewer people dying, as they will be operated earlier.

Dr. M. K. Wylder (Albuquerque) expressed his appreciation at hearing the views of two men, both experts, tackling the same difficult problem from entirely different angles. He referred to the wonderful work done by Maud Slye and advocated the keeping of records, by the government, of families wherein cancer cases developed, in order to determine definitely whether or not heredity plays any part in the transmission of this disease.

Dr. O. S. Fowler (Denver) stated that it always seemed to him that, while we are dealing with the treatment of a localized condition in the hope of destroying the entire area of involvement, a better approach and what he believes will be the ultimate treatment of cancer, is through systemic methods and that method will offer the greatest chance of cure. He cited a case that involved the entire intestines. The family were anxious and desirous that operation be performed, but, after cleaning out the pelvis, it was noticed that the intestine was still studded with the growth. The use of lead was suggested, but the doctor was away at that time so the treatments were carried out by his assistants. "The lead was administered but, unfortunately, the woman developed lead

poisoning, of which she died. The men tell me that lead poisoning is the great danger from this treatment."

Dr. Withers, in closing, stated that he wished to emphasize Dr. Fowler's remarks—that he believed the great advance to be made in the treatment of advanced cancer would be through some systemic method, whether it be in the form of a vaccine, antiserum, or whether it be some specific protein or what not.

Dr. Percy, in closing, stated that it is only by looking at a situation from two entirely different viewpoints that the truth can be ascertained. He used a quotation of an old English surgeon that "everybody would die of cancer if they lived long enough," as a probable explanation of the noted increase of cancer.

Dr. George Piness, Los Angeles, Cal., the next speaker, gave an extremely interesting talk on "The Problem of Allergic Manifestations in Infancy and Childhood."

In the discussion, Dr. M. K. Wylder (Albuquerque) stated that he had enjoyed the Doctor's lecture very much and had gained some points entirely new to him, especially the way of testing the sensitiveness of young babies by the transfer method.

Dr. W. A. Gekler (Albuquerque) asked in regard to the allergic type of individual, who, as he recovers from tuberculosis, develops hay-fever, stating that, as a rule, he found those patients who developed hay-fever were over their tuberculosis.

Dr. Piness, in closing the discussion, stated that he had always found that any tuberculous patient would be free of asthma as long as he was running a temperature, and cited several cases to bring out this point.

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Dr. Piness was followed by Dr. Victor E. Chesky, Halstead, Kansas, who spoke on "The Cardiac Manifestations of Goitre." The Doctor brought out the following points: (1) "Cardiac failure in goiter patients is not due to damaging action of the toxin on cardiac muscle, but is due to over-stimulation of a heart weakened by previous cardiac disease. (2) There has been no definite cardiac pathology demonstrated as being due to thyroid toxemia. (3) The various forms of colloid goiters produce no cardiac symptoms until cellular hyperplasia takes place within them. (4) Undamaged hearts bear thyroid toxemia exceeding well. (5) There is a type of toxic thyroid, seen usually in the last few decades of life, in which the cardiac symptoms completely overshadow the toxic and these are frequently erroneously treated as purely cardiac patients, without results. When these patients are subjected to thyroidectomy their cardiac recovery is complete and permanent."

In the discussion, Dr. Crum Epler (Pueblo) stated that his experience with these cases had not proven digitalis to be of any value. He recommended, in preoperative cases, rest in bed, plenty of food and freedom from friends, leaving them to themselves.

Dr. M. K. Wylder (Albuquerque) cited the work of a friend of his in St. Louis, in connection with the treatment of goiter cases, stating that he was keeping them absolutely quiet, allowed no visitors and insisted on the nurses giving the patients a glassful of water every hour they were awake. The only way they could get out of it was by being asleep. The Doctor claimed that they would stand operation much better after this treatment.

Dr. James F. Percy (Los Angeles) asked if, in digitalizing these patients, any sudden deaths had resulted.

Dr. George Piness (Los Angeles) asked, in cases of dehydration by glucose or water, whether bromide is of value where digitalis does not bring the action down.

Dr. Chesky, in closing, remarked that he had all the respect in the world for digitalis; that we know it is a poison and that it has to be carefully handled, and that he only gave it in cases where there was decompensation, where—there was heart failure. He endeavors to figure out the amount required and gives it in divided doses, so that it can be stopped completely if any untoward symptoms develop. He further stated that he had seen sudden deaths follow the administration of digitalis and that he believed it should be used with great care and in such a way that the full required amount is not given at once. The Doctor agreed that water was extremely valuable in these cases and stated that bromides were occasionally used and of value to the nervous types. Luminal is advantageous in this connection.

Adjournment followed the discussion of Dr. Chesky's paper.

(Continued in next issue)

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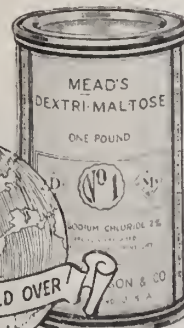
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AUGUST, 1928

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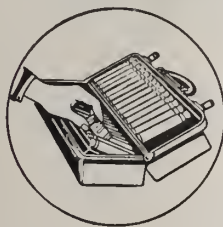
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*(New England Journal of Medicine, April 12th, 1928—page 379).

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HODGKIN'S DISEASE

An Analytical Review of Known Facts and Hypothetical Conclusions Regarding This Pathological Entity of the Lymphatic System

FRANCIS JEROME DUNNE, M. D.

Assistant Pathologist Dr. Waite's Laboratory,
El Paso, Texas.

(Presented before the Pathological Society of
El Paso, Texas, April 26th, 1928.)

Early in the year of 1926 microscopic sections were prepared from two specimens, Nos. 1523 and 4768 respectively, belonging to and scientifically cherished by the Museum authorities of Guy's Hospital in the City of London, England. The specimens consisted of a spleen and lymph nodes, preserved in alcohol for the period of eighty-two years and in formalin fifteen years longer. The sections made show a micro-anatomy that is typical of the disease which Sir Samuel Wilks christened in 1865 "Hodgkin's Disease" and the specimens were two out of three remaining in the Museum from the original tissues used by Thomas Hodgkin in describing that condition of the lymph-glands which in the larger part of the world is known and understood as "Hodgkin's Disease."

It is evident that Hodgkin saw at least one case of lymphogranuloma as we know it today. This was in the year of 1832. In that year he described seven cases, all of which had in common a wide-spread swelling of the lymph glands of the body, enlargement of the spleen and liver, anemia, cachexia and death. Even so, ninety-six years ago,—this statement circumscribes the condition clinically today. Lots of ink and paper have been used since then in the attempt to define this clinical syndrome, but the puzzle is still not solved. We have gotten a little further. We advanced from a clinical syndrome to a definite pathologic lesion and through the works of Virchow, Cohnheim, Kundrat and Sternberg, the conditions known today as leucemia, aleucemias, pseudoleucemias and lymphosarcoma seem to be separated from each other. Sternberg, in 1898, and Reed in 1902, final-

ly accomplished the last step, as far as facts are concerned, in giving an accurate description of the microscopical appearance of the structures affected by the malady known as "Hodgkin's Disease." Even so, more than 239 papers were published dealing in one way or another with questions pertaining to this histo-pathological complex since Reed's publication in 1902, but not a single definite conclusion could be reached regarding the nature, the etiology or even the terminology of this mysterious illness.

In reviewing this subject and trying to digest mentally what is contained in the voluminous literature existing about these "abnormal swellings" which are classifiable neither as inflammatory masses nor neoplastic growths, one finds it difficult to keep one's feet upon the solid ground of knowledge and the temptation to follow Jules Verne "up into the moon" is hardly resistible. There is so little that we know as facts and such a terrible lot that we can imagine. The inborn urge of the why? how? where? and what? leads us on and if our thoughts are not guided by the strongest fences of straight logic and carefully protected from any infiltration of phantastic dreams, we will know what "Hodgkin's Disease" is very quickly and there will be born in the same moment a new thinker who tears our supposed knowledge to pieces with statements he would like recognized as the final word. Therefore, let's start anyway with facts:

What do we know of "Hodgkin's disease?"

1. That it is a distinct histopathologic entity.

2. That it is invariably fatal.

By histopathologic entity we understand that microscopical sections obtained from lymph-tissue originating from a body afflicted with Hodgkin's disease show a distinct, characteristic histological structure different from any other abnormal builds and on this characteristic structure depends its recognition as a disease-entity. This

histopathological picture being the only **undisputable fact** about Hodgkin's disease, an incontrovertible diagnosis can be established during life only through a biopsy, or post-mortem by an autopsy.

What is this "Hodgkin's disease" characteristic microscopic appearance? To understand it fully, especially with reference to the picture obtained in other closely allied (?) diseases clinically often only differentiable with difficulty, let us recall the microscopic picture of a normal lymph-gland.

The essential points are:

1. Fibrous and muscular capsule.
2. Distinguishable trabeculae extending inwards through the cortex and anastomosing in the medulla.
3. Large masses of lymphoid cells in the cortex (cortical nodules).
4. Rounded cords in the medulla.
5. Channels and lymph sinuses between the fibrous tissue and the lymphoid tissue.
6. Fine framework of reticular tissue supporting the cells.

What happens to these features in case of affliction with "Hodgkin's disease?"

1. Capsule is somewhat thickened.
2. Trabeculae become undistinguishable on account of proliferation of the reticulo-endothelial cells which gradually replace the normal tissue of the gland.
3. Following an initial hyperplasia of the lymphoid cells active proliferation of these cells begins in the medulla.
4. Cortex and medulla appear as one reticular network filled with lymphocytes, plasma cells, eosinophilic leucocytes, epithelioid cells and multinuclear network filled with lymphocytes, plasma cells, eosinophilic leucocytes, epithelioid cells and multinuclear giant cells. These large cells are present in greater or lesser numbers, have characteristic nuclei that are variously lobed or multinucleated. **The importance of this type of giant cell as characteristic of the disease was emphasized by Reed, and they have since been known as the Dorothy Reed cells.**

5. Channels practically disappear and lymph sinuses are filled with cells or are indistinguishable.

6. The reticular tissue becomes more prominent and thickens. The connective tissue increases.

Comparing the two given pictures definite conclusions can be drawn.

Histologically, "Hodgkin's disease" is a diffuse granulomatous process, characterized by a confused mixture of an extraordinary multiplicity of cell forms, small and large lymphocytes, reticulo-endothelial cells, mononuclear and multinuclear giant cells, and often eosinophiles, polymorphonuclear neutrophils and plasma cells. The lesions

are uniformly diffused through the glands (contrary to the "patchy" distribution in tuberculous adenitis). **All of the cells that compose the lymph gland proliferate**—not always at the same rate, nor in the same degree at the same time. Proliferation of one type of cell may outstrip the others. **are quantitative rather than qualitative and** For this reason, **the cellular variations observed at different stages of the disease no essential modification of the fundamental histologic character is caused.** (Differentiation from lymphosarcoma where one type of cells proliferate).

This characteristic histologic picture is identical for every organ and tissue of the body that is affected.

The Dorothy Reed cells are characteristic of the disease.

The second fact that we know about this disease is that it is, up to date, incurable: in other words, it is fatal.

With the advancement in roentgen-ray and radium and the noted quick disappearance of external signs of the disease, the hope of a cure was more than justified. Yet, in searching for the recorded facts, one comes to the conclusion that through x-ray treatment practically no change was or is brought about in the progressive course of the disease, except prolongation of life for a little while. The masses treated would disappear, but new ones would arise apparently unhindered. In Germany, Klewitz and Lullies reported the treatment of sixteen patients with the x-ray. The average duration after the onset was twenty months. Only one patient survived six years. They concluded that the treatment does not prolong life. Schreiner and Mattick report in the J. of Roentgenology the treatment of 46 patients afflicted with this disease and make the following statement: "The adenopathies disappear and the patients are made more comfortable under x-ray or radium treatment, but the course of the disease apparently remains unaffected." Sternberg however believes that life is prolonged through roentgen ray therapy, citing one patient who is living for ten years. Still, he says emphatically that practically every case ends fatally within a few years regardless of the type of treatment used. The consensus of opinion seems to be that life is prolonged by x-ray therapy when masses are present and that produce pressure upon the trachea, lungs or heart. In all other instances the patient dies with small, and at times microscopically invisible masses, instead of large ones.

In connection with the afore-mentioned treatment-phase several known facts have to be kept in mind.

One is that large doses of x-ray destroy lymphoid tissue and that small doses, after causing a certain amount of destruction, bring about an actual stimulation of lymphatic tissue. (This fact may account for the early failures).

Second, x-ray administered in sufficient doses causes sclerosis and fibrosis. Laiggnel-Lavastine and Coulaud in 1922 describe a case of Hodgkin's disease in which the first biopsy showed recent sclerosis in strands especially near the periphery, many polynuclears arranged in small groups, numerous young connective tissue cells, many eosinophiles, and a moderate number of very large cells of unusual shape with multiple nuclei (Reed cells) some arranged peripherally. Thorough x-ray treatment was made over the enlarged nodes. They decreased rapidly in size, with marked clinical improvement. A second lymph node was removed six weeks after the x-ray treatment. Microscopically it was almost entirely sclerotic, but the connective tissue was so active that it resembled sarcoma. Polynuclears were absent and only a few transitional forms and eosinophiles were present. There were none of the Reed cells. The conclusion they have drawn was: Sufficiently large dose of x-ray causes fibrosis and disappearance of the endothelial and giant cells in the lymphogranulomatous nodes. What does that mean? Through the x-ray a microscopical picture was produced which resemble or is practically identical with the histological appearances of the coarse and deforming fibrosis seen in sections from the late stages of tumor-forming Hodgkin's disease; the natural course of events within the node had been accelerated.

Third, it is finally also a known fact, that cellular Hodgkin's responds more rapidly than the sclerotic type. But the x-ray treatment produces the sclerotic type in relatively short time; it changes the x-ray susceptible lymph node into the treatment-resisting fibrosed lymph gland. May not here be a thought for the explanation of the eventual futility of our curing endeavor in this direction?

THE PATHOLOGY OF HODGKIN'S DISEASE.

Most observers of this disease state the following: Hodgkin's disease is primarily an affection of the lymph glands. Usually beginning in one group, it ultimately involves all or nearly all of the lymphadenoid tissue of the body. It is usually accompanied by the formation of granulomatous masses in the viscera, and by anemia and cachexia. Acute and chronic forms occur.

According to statistical records the cer-

vical glands are most frequently affected. (96-100 per cent).

Supraclavicular glands (58 per cent).

Axillary glands (50-59 per cent).

Inguinal glands (36-42 per cent).

Abdominal glands (11-19 per cent).

Mediastinal glands (33 per cent).

The extension of the disease from the primary focus is usually by way of the lymph stream to the next group of glands in the course of the flow of lymph. Accordingly the nodules in the viscera are not metastatic growths as in carcinoma, but are due to generalization of the exciting cause.

The size of the several glands in each group varies greatly, because all of them are not involved simultaneously. In one group one often can recognize all the stages of the disease. Same is true of the consistency of the individual glands; some are harder, others softer.

In most cases the glands are not adherent to each other, nor to the surrounding tissue structures. The capsules, however, are often infiltrated. There are reported cases where through the capsule the surrounding tissue was extensively invaded. In such cases sarcomatous transformation must be considered. The most markedly invasive type occurs in the mediastinum. It is probable that such mediastinal lymph nodes are of long standing, unrecognized and through a chronic irritation process degenerate into the malignant type.

The cut surfaces of the glands are uniformly yellowish white. When cutting through a larger mass of apparently adhering groups of nodes, the division by fibrous-like bands is always visible. There is a possibility of extensive co-existing tuberculosis; there was never found tubercles, no accumulations of lymphocytes nor epithelioid cells, no giant cells of the Langhans type, and yet there was extensive necrosis. There are always nodes present that are not caseated and they show the typical Hodgkin's picture.

The spleen is enlarged in about 60 per cent of cases through the presence of secondary growth. Mostly it is much smaller than in leukemia. The cut surfaces of the spleen show white nodules scattered through the parenchyma, when involved, and according to the literature it rarely remains entirely uninvolved.

The liver is not always, but is very often involved. The infiltrations are characteristic and are present principally in the portal spaces and around the bile ducts. (Possible explanation of the occasional development of jaundice).

The peribronchial nodules principally at the hila of the lungs are infiltrated in most instances. Often large tumor masses involve the lungs. Extensive hydrothorax is often present.

The skin is often involved. Cutaneous manifestations may give the first warning of the onset of this disease. In the abdomen the lesions are usually limited to the stomach and upper part of the small intestine, but they may occur in the colon. They consist of massive thickening in the mucosa. The nodular thickenings tend to undergo superficial necrosis and this is about the only place where ulcerative processes may be encountered in this disease. A terminal peritonitis is not uncommon with or without actual Hodgkinic involvement. When the retroperitoneal glands are involved often the kidneys will show granulomatous deposits in the cortex. The bones and bone marrow show lesions of the disease in a considerable portion of cases. Of the muscles, the cervical, pectoral, intercostals and the psoas are mentioned as being found involved.

As one can see, all lymphatic structures may fall prey to the disease and in some instances push themselves into the surrounding tissue.

THE CLINICAL SYMPTOMS AND CLINICAL DIAGNOSIS

When one considers the number of organs which may be involved already before even the first grossly recognizable signs of the disease appear and when one considers that Hodgkin's is a disease of an entire system of the body, the difficulties one encounters in the diagnosis of it are not surprising.

A sure diagnosis is furnished only by the microscopical examination of tissue involved by the disease. Therefore, biopsy should be made in every case suspicious of being Hodgkin's. There is no physiological, surgical or medical reason to abstain from such procedure. Sometimes patients are afraid and refuse. Yet in most instances they agree eventually if properly approached.

Regarding the symptoms and the clinical diagnosis I wish to make only a few short remarks. They are voluminously treated in all modern text books and it would be only a waste of time to repeat. Yet a few hints might be of value.

In my opinion the greatest drawback in treating this disease is the fact that we recognize its existence only when already superficial gland involvements present themselves. That is, when the disease actually has passed its acute stage. There seems to be no doubt that lesions exist be-

fore the symptom of superficial gland involvements appear. The most scrupulous attention must be paid to the ailing patient who complains of weakness, nervousness and itching of the skin. If no reason can be found for same, x-ray examinations should be made. There are cases reported in which simply by taking films for diagnostic purposes all symptoms above mentioned disappeared for a while, which fact furnished diagnostic data by itself. Often deeper-seated gland involvements are discovered in this way.

While the early diagnosis of Hodgkin's disease is not always easy one must keep in mind that cutaneous manifestation may precede all other symptoms or signs by several months and that these same symptoms may disappear, recur and disappear again.

Lesions of the mucous membranes and of the bones are not rare, but only overlooked too often.

The early discovery of abdominal lesions in this disease is of importance. Lymphogranulomatosis localized chiefly to the gastro-intestinal tract is being reported with increased frequency. The German schools claim and possibly rightly so that many, even autopsied, cases have been confused in the past with lymphosarcoma, tuberculosis, carcinoma and pseudoleukemia.

One more hint regarding the biopsical diagnosis: Surgeons love to remove for such examinations the largest or at least part of one of the largest glands they can find. This is contrary to the aim it is desired to achieve. The larger glands in most instances have passed the original Hodgkinic stage and the histological appearance, while typically Hodgkinic, is harder to recognize with absolute certainty on account of the greater proliferation and accumulations of cellular structures. That is the reason sometimes a doubtful or even false histological report is encountered. The best specimen for biopsical examination purposes are the small, only very slightly enlarged glandular masses next or near to the greater lymph nodes. There one finds the typical histological picture with ease and surety.

CLASSIFICATION

In a deductive way, from the discussion of the symptoms met with in the complaining patient, and admitting that we do not know anything definite of the nature and etiology of the disease in question, the following classification seems to me admissible:

1. Acute, with unrecognized localization.
2. Localized.
3. Generalized, superficial.
4. Mediastinal.

5. Larval or typhoid. (Mainly abdominal).
6. Splenomegalic.
7. Osteoperiosteal.
8. Intestinal.

The mediastinal form is frequently very invasive.

In the larval or typhoid form, the abdominal glands are chiefly involved and the disease runs a course suggestive of typhoid fever.

Before attempting to summarize the speculative leads about the nature and etiology of Hodgkin's disease I wish to glance at the question of the existence of this disease in animals and the question of heredity.

The disease has been observed in the dog (4 cases), in the cat (2 cases), in the horse (1 case), in the cow (4 cases), in mice (few cases). The animals mentioned have rarely been used in attempts to produce the disease experimentally. Delbe claimed to have produced it in a dog, but his experiment was not repeated. Schalgenuhauser inoculated a male pig with an emulsion of Hodgkin's gland, but the animal remained well. Experimental inoculations of guineapigs, rabbits and monkeys are reported in numbers. Only one thing can be said about it: Proofs and verifications are wanting regarding results. No case of spontaneous Hodgkin's disease appears to have been observed in the common laboratory animals.

Heredity, up to 1926, seems to be no factor in the disease. In that year, in Virchow's Archives for Pathologische Anatomie, a report is made indicating the placental transmission of Hodgkin's. Two weeks before the end of a normal pregnancy, painless enlargement of the superficial lymph nodes developed in a woman aged thirty-one. From the microscopic examination of an excised node, the diagnosis of lymphogranulomatosis was made. A nodular swelling was noted in the left supraorbital region of the child when the latter was eleven weeks old; the mother had died in the meantime and a necropsy had not been performed. The child died at the age of four and a half months. The characteristic histopathologic changes of lymphogranulomatosis were present in the bones of the skull, the bone marrow, the liver, the thymus and the retroperitoneal and mesenteric lymph nodes. The early onset of the disease in the child convinces the authors of the placental transmission of the disease.

BLOOD EXAMINATIONS IN HODGKIN'S DISEASE

Under this heading we understand primarily the numerical, morphological and

relatively qualitative examination of the cellular elements, including the platelets, of the peripheral blood.

It is well known that absolute diagnostic blood pictures are obtainable only in very scanty instances. We are not fortunate enough very often, to be able to demonstrate conclusive evidences; such, for example, as malaria, lymphatic or myelogenous leukemia presents. Such blood pictures as those of pernicious anemia and chlorosis, fairly characteristic, are only two out of the many blood examinations that give a diagnostic assurance. In practically all other instances the blood findings obtained as a whole must be matched with the rest of the clinical evidences and the result must be reached by deductive comparison. Here lies the reason why, in so many instances, blood examinations are omitted by men who otherwise are anxious to employ all means to reach a well supported diagnosis before prescribing some kind of treatment.

The necessity of a proper interpretation of the blood findings should be kept foremost in the mind. The lack of such interpretation is the cause of discrediting blood counts. The practicing physician can only blame himself and not the laboratory, for to interpret the blood picture the laboratory must know as much as possible of the case. For example: About a week ago a white and differential count was ordered to be taken. The findings were 12,000 leucocytes with 76 per cent polys. The physician said over the phone: "Well, that's not enough for an abscess," and hung up. Two days afterwards x-ray findings disclosed a large lung abscess, in a tuberculous patient. The physician is still convinced that the blood count was either wrong or that it does not help in the diagnosis. He does not realize that 12,000 leucocytes with 75 per cent polys in a tuberculous patient who regularly presents a leucopenia and lymphocytosis can mean more than 20,000 leucocytes and 95 per cent polys in a non-tuberculous patient But we are talking about the blood picture in Hodgkin's disease.

There is no characteristic blood pressure in Hodgkin's. Even so, Bunting and Yates and a few more overzealous workers state the existence of such. But there are findings which more than support the clinical diagnosis of Hodgkin's and differentiates it from its relations and helps in the recognition of the stage of Hodgkin's one deals with.

During the discussion of the symptoms and clinical diagnosis, as well as in describing the histology of the disease-caused lesions, attention was called to the three dif-

ferentiable stages of Hodgkin's. These three stages each produce and explain these sometimes widely differing blood findings.

One finds leucopenia of 1200 with lymphocytosis, and finds leucocytosis of over 100,000 with polymorphonucleocytosis. But there is always present an absolute and relative increase in large mononuclear cells and transitional forms. While they are not pathogomonic of Hodgkin's, their relative percentage is characteristic.

The average blood pictures are:

In the very early stage, normal leucocyte count or a slight leucopenia with a normal differential count including a slight increase in large mononuclear cells and transitionals.

In the stages with superficial lymph nodes enlarged and through to the later stages, polymorphonuclear leucocytosis unaccountably high in relation to the clinical findings. Much increased large mononuclear cells and transitionals.

In the fatal stages, leucopenia with small type lymphocytosis. Still an increase in transitionals and especially in eosinophiles.

The blood platelets are increased in numbers and form pseudopod-like masses.

The erythrocytes and hemoglobin are those of all secondary anemias.

Even so the blood findings show such great variations in a logical evaluation with the clinical findings, they form a step towards the diagnosis.

In discussing the nature and the etiology of this disease, one leaves the domain of reality and a travel into fairyland is necessary. As one reads the accountings of the endeavors to solve the mysteries and to lift the veil that hides the truth, one follows a circular road. We arrive where we started from.

The fundamental problems of the nature and etiology of Hodgkin's disease are still unsolved.

Claims are made:

That it is an infectious granuloma caused by an organism not yet identified.

That neither tuberculosis nor the tubercle bacillus bears any etiologic relationship to this disease.

That the contrary is true.

That caseation necrosis may be extensive in the lymph nodes of Hodgkin's disease and may thus resemble tuberculosis and lead to a mistaken diagnosis.

That the bacillus Hodgkini of Bunting has no casual relationship to this disease.

That there are reasons to believe that the etiologic agent is probably an animal parasite, is the newest.

Some day we shall know.

A PRACTICAL ADDITION TO THE TECHNIC OF CHOLECYSTECTOMY

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(Read before the thirty-seventh Annual Meeting of the Arizona State Medical Association, held at Tucson, Ariz., April 19-21, 1928.)

Doyen was the first surgeon to advocate subserous cholecystectomy. This method did not prove popular. It was beyond the average surgeon's technical ability and required more time than most surgeons felt was within the limit of safety for general anesthesia. Doyen¹ placed a tube drain down to the ligated stump and closed the peritoneum over it. This procedure did not reduce mortality. Ochsner², in 1902, began placing a tube down to the cystic stump and leaving it open to drain. Lester R. Whitaker³ describes, very beautifully, a procedure for removing the gall-bladder subserously but he does not mention the most important phase of this operation, which is the fastening of the tube in the cystic duct for the purpose of drainage. I fail to find, in the literature, details of any operation that utilizes the cystic duct and catheter as a routine method for drainage. This procedure is easy after one has developed the necessary technic and had sufficient practice on the dog. It is not advisable for the casual operator to attempt this method without preliminary work on dogs.

The death rate from gall-bladder surgery has increased 67 per cent in ten years. Part of this increase is due to so-called "conservative treatment" which proves, in the end, to be radical and disastrous. If a correct diagnosis of gall-bladder disease is made and the x-ray verifies impaired function and the symptoms check with the history, the gall bladder should always be removed.

The technic of removal is the subject of this discussion. Judd and Mann⁴ proved that removal of the gall-bladder, in animals, caused dilatation of the common and hepatic ducts. They did not control their experiments by providing for drainage through the stump of the cystic duct. Drainage by tube in the common duct will, in a large percentage of cases, cause a temporary obstruction by causing edema and round cell infiltration. This procedure, fortunately for the patient, is seldom necessary. After the gall-bladder has been removed there is, without doubt, an adjustment accomplished at the sphincter of Oddi. However, this adjustment is not accomplished at once; hence, the dilatation of the bile passages with its accompanying days of pain and discomfort, with frequent death. The use of

diathermy, pre and post operative, is of value in gall-bladder surgery. Its well-known relaxing effect is of considerable value. With a steady increase in mortality and broader indications for gall-bladder removal and universal agreement that cholecystectomy is the operation of choice, it

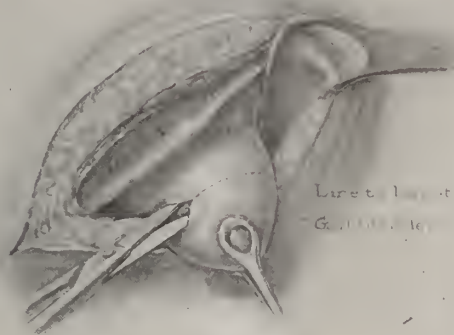


Fig. 1

behooves the profession to bend every effort to improve our present inadequate and unsatisfactory technic.

The abdomen is opened by the operator's incision of choice. We prefer the transverse incision but occasionally use the incision placed close to the midline. After the abdomen is opened, inspection of the abdominal contents in the upper abdomen should be made. If the operator is working under local anesthesia, this is easily done. In cases where we wish to make a thorough inspection, we use the abdominoscope⁶. Most examinations, through an abdominal wound by pushing the hand in and squeezing and feeling around, are quite useless to discover any pathology except masses that are easily palpable, and these are often overlooked. The ideal way is a careful search with the abdominoscope. The fundus of the gall-bladder is then caught in sponge forceps. Slight traction is exerted, which will cause the patient to contract the diaphragm, thus forcing the liver and gall-bladder downward. The gall-bladder presents into the wound, in the majority of cases, without any excessive traction. About 45 c.c. of 0.75 per cent novocaine is then injected between the gall-bladder and liver and along the common duct. If more than ordinary tension has to be exerted, a splanchnic block on the right side is then made by injecting 60 c.c. just to the right of the second lumbar vertebra into the retroperitoneal space. The peritoneal covering of the gall-bladder is opened at a point 1.5 cm. from the margin of the liver. Curved scissors are placed beneath the peritoneum and the peritoneal covering is stripped from

the gall-bladder, following a line corresponding to the transverse circumference of the gall-bladder at this point (Fig. 1). The stripping of the peritoneum from the gall-bladder is continued down to the cystic duct. The peritoneal coat is grasped at three or four points and all traction required is put on this tissue. The dissection is continued downward, separating the peritoneum from the cystic and common ducts and occasionally ligating a small vessel. This is very easily accomplished and no vessels of any size are damaged. A right-angle clamp is placed about one inch from the common duct. The cystic duct is grasped on either side so that the lumen will not be occluded and the duct is cut off proximal to the clamp, the clamp being left on the gall-bladder. The cystic duct is open and, if there is no stricture, a few drops of bile will flow back into the peritoneal pouch. A No. 20 F. catheter, with the tip cut off, is placed in the cystic duct. This is pushed down to within a centimeter of the common duct and ligated in position, with the first ligature placed near the common duct (Fig. 2). A second ligature is placed about three-fourths of an inch above the first ligature. The peritoneal coat that has been acting as a sack in which the operation is performed, thus protecting the peritoneal

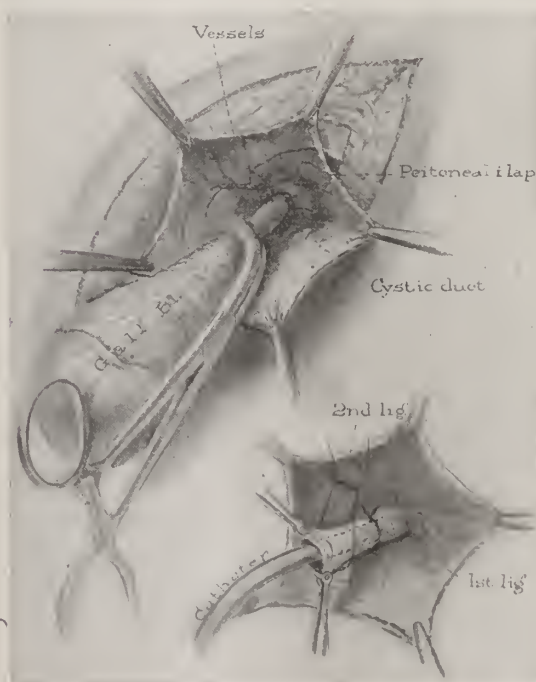


Fig. 2

cavity from soiling, is now gathered in a purse string and the third ligature is tied firmly around the catheter.

If stones are present, the common duct can be opened by splitting down the cystic,

but this is seldom required. Care should be used not to handle stones roughly, for traumatization of the common duct will cause stricture. Local anesthesia is a great factor in protecting the patient. The rough technician cannot work under local. If much handling is going to be required it is better to open the duct and take out the stones. Speed is not a factor. The surgeon with limited time should not do gall-bladder work. Speed and general anesthetics are probably contributing considerably to the 67 per cent increase in mortality.

We have performed this operation successfully in eighty-one cases. It is an operation for chronic cases. Acute cases are not handled by this method by us. We prefer to treat these cases expectantly until the acute process has subsided and then operate. If there are indications for immediate interference, only decompression should be done and the gall-bladder removed later.

The average time for bile drainage, in these cases, is five days. No narcotic is ever used after the first night and, in many cases, not after the operation.

The postoperative course is a revelation to any surgeon who has been performing the classical cholecystectomy. Postoperative vomiting is seen in about one case in five and, if the morphine is administered lightly as it should be (never more than one-half grain in divided doses in any one case) there will be less vomiting. We attribute postoperative vomiting to morphine in a large majority of cases.

We use local anesthesia altogether. We gave general anesthesia in two cases at the patient's request. General anesthesia is not satisfactory in performing this operation. Therefore, we have discontinued its use even though it is requested by the patient, preferring that the patient go elsewhere.

If other surgery has to be done, such as appendectomy, herniotomy, perineal repairs, etc., this should all be done before the gall-bladder is removed. If the gall-bladder is removed first, the patient will have a tendency to contract the abdominal muscles as the anesthetic dies out. This would interfere with work in the pelvis. Therefore, it has always been our custom to do the gall-bladder work last.

The advantages of this operation are numerous. It provides drainage of the biliary system, and, at the same time, permits cholecystectomy. It prevents dilatation of the common and hepatic ducts; prevents interference of liver function by back pressure; it eliminates the danger of death from blowing off or cutting through of a

ligature and it leaves no raw surface to which adhesions can form. It opens up the lymphatics surrounding the bile ducts where most of the pathological processes originate. It shortens the operative stay in the hospital and gives a more comfortable post-operative period. It reduces to a minimum, in fact, in the hands of a careful operator, it should eliminate all accidents due to anatomical anomalies of the cystic arteries (cystic, common, hepatic and pancreatic ducts). In this operation the cystic artery is not cut and not ligated. The branches, if any are encountered sufficiently large to require it, are ligated.

This operation appeals to us as a distinct improvement over any operation previously described.

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DISCUSSION

DR. VICTOR GORE, Tucson. (Opening discussion):—I want to compliment Dr. Sweek on the description of a very beautiful operation. Am frank to say that it is new to me in the detail in which he has demonstrated it, and appeals to me as a distinct improvement over what we have been doing prior to this time. There is no argument over the fact that the proper thing to do with a diseased gallbladder is to remove it. Many cases who have been subjected to drainage return later to the same or some other surgeon to have the gall-bladder removed. I must admit Dr. Sweek reports; however, I believe it is better that I am not able to perform nearly so high a percentage of these operations under local anesthesia as for the patient to have them done under local. I do not think Dr. Sweek means to say that every gall-bladder case needs to be drained following cholecystectomy. I reported a series of thirty-five cases in 1922, to the Oklahoma State Medical Association, where we removed the gall-bladder and closed without drainage. Only one case was re-opened and the reason for that was that on the fifth or sixth day the patient had every symptom of a tremendous internal hemorrhage. We opened him and found nothing. After he was returned to bed, he expelled by bowel a large quantity of blood; four or five days later the patient died and postmortem examination showed typical typhoid ulceration of the bowel. I would like to have Dr. Sweek discuss that question again, as to whether he believes every case requires drainage. We all know that many do, but the chronically diseased gall bladder, especially the type which is white and shriveled, without stones, or with a single hard stone and no symptoms of blocking of the liver ducts, I think can perfectly well be removed without drainage. I believe it is just as safe to remove the gall-bladder without drainage as it is to

remove the appendix without drain. There is no reason for draining the gall-bladder because it is the gall-bladder, than for any intestinal or appendix operation. When the duct is ligated or vessel is ligated, it is not necessary to tie them with a rope. If a man believes ligation will slip off or break, he had better drain. I have found that ligating with No. 1 catgut is safe. The pressure in the vessels of the liver and in the ducts is very low, and they can be ligated with a fine strand of catgut.

DR. C. A. THOMAS, Tucson:—I feel that Dr. Sweek is using a very unique method of cholecystectomy. I have never used it, but feel that he mentions some things in connection with the operative technic which are very valuable and probably would bear being emphasized. He says he does not drain the acute gall-bladder. His idea of draining by this method in chronic gall-bladder disease is valuable, for the reason that if you have chronic gall-bladder disease, you also have a chronically diseased liver. Therefore, if you remove only a portion of the focus of infection, certainly you are doing your patients justice if you drain the remaining portion of the infected tissue, which the liver is. By using drainage, you also relieve the back pressure and distention of the common duct, thereby relieving your patient of a great deal of pain as well as probable further damage to the liver, by permitting the overflow through the catheter. The injection of the novocain between the gall-bladder and the liver, which I frequently use under local anesthesia, separates the gall-bladder by the pressure of the injection; it is a great help. In chronic gall-bladder diseases, there is also chronic hepatitis or disease of the ducts of the liver which has rendered the function of the liver below normal, all these patients will be benefited by preventing loss of heat by diathermy during the operative procedure.

DR. H. D. KETCHERSIDE, Yuma, Ariz.: In connection with the drainage of the gall-bladder, I will mention a method used at the Mayo Clinic. They feel that there is nearly always an associated hepatitis and that a certain number will require drainage. So they leave the stump of the cystic duct with a slip knot, leading the suture out through the incision, and then put in a gutta percha drain, corrugated. If the patient begins to act up, they pull on the ligature and it comes off and they have drainage. If this is not required, in a few days, it loosens up and comes out.

DR. J. M. GREER, Mesa, Ariz.:—This method of Dr. Sweek is somewhat unique. I have seen him work several times, and it appeals to me as a very surgical thing to do. We adopted this method in our last case. I would like to emphasize what Dr. Thomas has said about drainage. There is an associated hepatitis with most of these cases, in which case it seems to me that drainage is logical. A great many surgeons ligate tightly and close tightly and seem to get away with it, but this does not mean that they are doing the best thing for their patients.

DR. W. L. BROWN, El Paso:—I do not wish to speak so much in discussion of this operation as in general emphasis upon that sort of work. The doctor has just spoken about Mayos. I heard Judd state last October that they found in a large series of cholecystectomies, that the cases had been better where they had ligated and closed without peritoneal drainage. We have had two experiences in the last six weeks that set us thinking. We often hear it stated that we ligate the cystic duct and sew the wound with "No. 1 chronic catgut" or No. 2 or what not. We had operated two patients, one one day and the other the next. Patient on whom hysterectomy was done had wound fall open on the eighth day and on the following day the wound on the second patient on whom cholecystectomy was done, did the same

thing. The patient with cholecystectomy had recently had infection with stones; we had removed the gall-bladder and ligated with No. 2 catgut, which we have always used, after crushing the duct. When these two wounds fell wide open, I found upon making close examination that there was no evidence in the woman of any catgut in the wound, and in the man with cholecystectomy we found four knots and that was all that was left of the catgut; meaning that this catgut at the end of eight days had been completely absorbed and was no longer rendering service. We found that the catgut they used stated the exact number of days, as ten days, twenty days, etc., but their tests were done by burying that catgut in the stomach where there is no stress on it; there is no indication what to expect when there is stress. When we found the catgut gone and only knots left, we went back and found that we had paid no attention whatever to the length of time it was intended for, an had been using ten day catgut. I mention this to suggest that we had better know something about the catgut and length of time it is intended to hold.

DR. J. I. BUTLER, Tucson:—No absolute rule can be laid down! In those cases Dr. Sweek has been talking about, if a gallstone is found, the probability is that there has been stricture of the common duct. This could be investigated and the calibre determined and the probability of some back pressure be estimated: the question of drainage should depend on that. If you get a stone out of the duct, acute edema may set in and interfere with drainage and give back pressure sufficient to interfere with liver function and possibly pressure on the stump of the duct. If no such condition exists, there is no reason for not tying the thing off completely and having a closed wound.

W. L. BROWN, El Paso:—There was something I started to say about my cholecystitis case. He fell open on the second day. The duct opened up and discharge bile after being crushed and ligated. If his abdomen had remained closed, we might have had serious consequences.

DR. W. O. SWEET, Phoenix, (Closing):—Dr. Gore mentioned the question of drainage. I did not develop this method with the idea of drainage, that is merely incidental. Drainage occurs and is of value, but the idea of putting this catheter in is to eliminate the five or ten per cent mortality from gall-bladder surgery, which is occurring all over the country. If Dr. Brown's ligature had come off on the third or fourth day and the sphincter of Oddi had not been relaxed by the constant flow of bile, he would have lost his patient. That is the reason for putting that catheter in the duct; it is a safety valve; it is the main thing in the operation. Taking it out beneath the peritoneum is a mere incident. It is put in the cystic duct as a safety valve, to prevent the overflow of bile from backing up. The first thing that happens when you traumatize the peritoneum is a contraction of the abdominal muscles. Why do we think that the same contraction does not go on inside? When you operate under local anesthesia, and your patient is not completely paralyzed, you will frequently notice peristaltic contraction maintaining itself for fifteen or twenty minutes: intestines contract and remain so. The constant flow of bile over the sphincter of Oddi relaxes it. If that sphincter contracts and your morphine stops the flow of bile, there is nothing to release that for the time being. That is the reason for this safety valve. When the bile begins to flow, it will flow rapidly, because the liver is a very rapidly secreting gland. The result is that the common and hepatic ducts dilate, patient gets right shoulder pain and is in trouble.

Dr. Ketcherside mentioned the method of tying the duct off and of putting drain down in the vicinity

of the cystic duct. I have always considered that poor surgery and do not advocate it. If you are going to drain, the thing to drain is the bile system through the bile ducts; the surrounding tissue is a minor matter. If you must put a drain in, why not put in this kind which acts as a safety valve? Then, if you have a stone coming down from the hepatic duct, blocking the common duct several weeks after, the bile will find its way along the tiny groove that this catheter make. Have had that happen in one case, in which the gal-bladder was full of stones, with stones in the ducts and in the liver. He passed rocks for several months and this little channel saved his life on two occasions. The time that the catheter remains is not an important factor, so long as it stays more than twenty-four hours. Have had it come out at 48 and 72 hours in several cases; no harm was done, the bile draining out along the tract for five or six days; by the end of the fifth day you rarely have any bile coming through. By that time the bile is passing freely through the common duct, the bowels move and the patient is comfortable.

OSTEITIS FIBROSA CYSTICA, OR BONE CYSTS

By ROBERT J. DOSTAL, M. D.,
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(Read before the Northern Arizona Councilor Meeting, held at Flagstaff, Ariz., June 16, 1928.)

Osteitis fibrosa cystica, or bone cysts, are in reality pseudocysts and not true cysts, as they are not lined by endothelium. They usually affect the long bones, chiefly the femur, humerus and tibia, occurring in the shafts and rarely involving the epiphyses. They are generally single, but cases of multiple cysts have been reported, especially in the bones of the hands and feet, and in the humerus, femur, and pelvis. It is essentially an affection of young subjects in the growing stage. Most cases are found between the ages of nine and eighteen. They are rare in the real young and, when found in older people, are believed to have originated while the patient was young and to have remained dormant. Both sexes are equally affected.

ETIOLOGY

The true etiology of the condition is still under discussion. Several theories have been set forth. Probably the earliest, and the one which is still accepted by many, is that of von Recklinghausen, who considered the condition basically inflammatory with a replacement of bone structure by fibrous tissue which later degenerates and becomes cystic. The theory of degenerated tumor tissue has been advanced and discarded. Trauma has been given as the basic cause, with resultant hemorrhage, hematoma formation, and degeneration. Quite recently Phemister and Gordon have presented two cases in which they have isolated streptococcus viridans from the cystic fluid, and conclude that the cysts are of inflammatory nature due to specific bacterial invasion.

PATHOLOGY

Grossly, the bone usually appears swollen in all dimensions although, in a very small cyst, this may not be marked. The periosteum is intact unless a pathological fracture has occurred. The walls of the cyst consist of a thinned cortex, sometimes only of eggshell thickness. There may or may not be a fibrous lining. Its contents usually consist of a clear, serous fluid, but sometimes is of a thick brownish nature. In a few cases there is no cyst formation, but the bone shell covers a mass of solid fibrous tissue.

According to Bloodgood, "The microscopic appearance of the solid mass of fibrous tissue filling the bone shell, or of the connective tissue lining, or of the tissue found in the dilated haversian canals of the bone shell where there is no connective tissue is identical." It is all apparently of connective tissue origin. Moreover, almost always, according to the same authority, cellular areas may be found consisting of spindle cells and round cells. It is this tissue which on frozen section may be mistaken for sarcoma. The spindle cells, however, are apparently of the connective tissue type which form fibrous tissue, and the round cells, according to Sisk, are either osteoblasts, which have not yet formed bone, or cells which arise from proliferation of the endothelial cells of the blood vessels.

Very occasionally, if the lesion is near the epiphysis, a circumscribed area of hyaline cartilage may be found.

SYMPTOMS

The symptoms of bone cysts are very few. As a rule, pathological fracture following a relatively slight injury is the first sign of trouble.

In some cases, however, there may be vague rheumatoid pains occurring in the bone involved. In other cases, the cyst is painless and, after a long period of latency, there is observed a progressive increase in the size of the bone. The skin remains normal, and there is no increased circulation. The enlargement is hard and of uniform consistency. It may vary greatly in size, some reaching quite enormous proportions. There are no general symptoms such as loss of weight or fever.

Bloodgood summarizes the clinical features of bone cysts as follows: first, the age of onset under twenty; next, fracture from slight cause; next, expansion without pain; and fourthly, the tendency for spontaneous healing.

COURSE

There is usually a long period of latency. The cysts may grow progressively larger or remain the same size for years. Some-

times there is spontaneous disappearance with healing. More usually there is pathological fracture, which may or may not be followed by healing.

PROGNOSIS

The prognosis is good. The cysts act like benign tumors. General condition is never affected. Occasionally spontaneous healing occurs. Fracture or operation leads to complete cure. There is no recurrence.

DIAGNOSIS

At times the diagnosis of bone cyst is evident because of typical clinical history, examination, and x-ray findings, while again diagnosis can only be made after exploratory operation.

In making the diagnosis, these few clinical facts must always be remembered. Bone cysts usually occur under the age of twenty; they practically always involve the shaft and never the epiphysis; they are usually painless; pathological fracture is common.

The x-ray shows gradual replacement or destruction of the cancellous bone within the cortex, and expansion of the cortex without periosteal bone formation or evidence of infiltration outside the shell. Moreover, x-ray following fracture usually shows rapid union by callus formation and ossification of the central tissue. This is important, as many conditions to be considered in the differential diagnosis of bone cysts may show healing following pathological fracture, but bone cysts are the only ones to show central ossification.

In the differential diagnosis, one must consider giant cell tumor, sarcoma, chondroma, myxoma, secondary carcinoma, chronic osteomyelitis as Brodie's abscess or tuberculosis, syphilis, and finally myeloma.

Giant cell tumors practically always involve the epiphysis, and are rarely seen under the age of sixteen.

Sarcomas also are rare in childhood, and usually on x-ray show involvement of surrounding tissue. Occasionally, however, in the very early stage, it is impossible to differentiate a sarcoma from bone cyst except by exploratory operation and microscopic study of specimen.

Chondromas are found only in adults. X-rays, according to Ewing, show osteoporosis of the ends of the bones and often a cystic appearance, while the compact bone at the ends of the shaft is very deficient. The structure shows a persistence and overgrowth of poorly ossified or calcined cartilage. The ordinary epiphyseal line is irregular and obliterated.

Myxoma is also rare and almost always shows involvement of surrounding tissue, thus ruling out bone cysts.

Carcinoma is always secondary to a growth elsewhere, which is usually evident in the clinical findings. X-rays are characteristic of tumor formations.

Syphilis is usually evident from history, physical examination, and laboratory findings. A solitary gumma involving shaft of bone is possible, but x-ray usually shows the characteristic periosteal and cortical thickening of bones.

Chronic osteomyelitis usually shows involvement of surrounding tissues with some osteogenesis. Pain is a marked symptom. Sinus formation is suggestive of tuberculosis. Occasionally a mild infection as a Brodie's abscess may give a typical x-ray picture, but pain is again a prominent factor.

Myelomas are always rare, more so in children, and practically always multiple, while bone cysts are rarely so.

Bloodgood has this to say about the differential diagnosis, "If the patient is under fifteen years of age, one may be quite certain it is a bone cyst. When the epiphysis is involved, it is usually a giant cell tumor. If the patient is an adult, one must bear in mind the rarer chondroma, myxoma, metastatic tumor, multiple myeloma, and sarcoma."

At times it is necessary to resort to exploratory operation to establish a diagnosis. The exploration should be done carefully and bloodlessly to prevent possibility of transplanting tumor tissue. Bloodgood gives the technic mainly as follows: The soft tissues should be examined carefully, as involvement would suggest sarcoma or other malignancy. However, if operation follows pathological fracture, there will always be an inflammatory reaction, and one must not be misled by this. When bone is reached, strip periosteum and examine cortex. Remove small piece of bone. In a cyst without lining, the fluid will immediately escape. If there is a lining, one will meet it after removing the cortex. It is of connective tissue of variable thickness and very tenacious. When this lining is perforated, fluid will escape. Occasionally the entire cavity may be filled with fibrous tissue, and it is this condition that is often mistaken for malignancy.

If tumor explored is of a cartilaginous nature, this will be easily distinguished on gross and microscopic examination. Myxoma resembles tapioca, and is colored here and there with blood. Giant tumor resembles granulation tissue. It is friable and shows a mixture of different shades of red tissue and white tissue. Moreover, some types of malignant tumor resemble this giant cell tumor. One distinguishing factor

is that the benign giant cell tumors never have cavities containing blood, while sarcomas do.

Frozen sections should always be taken and examined with care, not forgetting that bone cysts contain areas of spindle and round cells.

TREATMENT

If the bone shell is intact in the x-ray, subsequent pictures will show whether there is further expansion or thinning, or whether there is ossification. When further involvement is shown, immediate operation is indicated. If condition remains stationary, there is a possibility of spontaneous healing, but operation is usually simple and offers a quicker cure, and probably will prevent pathological fracture.

If there is a fracture, subsequent x-rays will probably show rapid healing and ossification; if not, then operate.

When you operate on a supposed bone cyst, first explore and be sure by gross and microscopic studies that it is a bone cyst. The diagnosis being made, the treatment is simple. If there is no connective tissue lining, all that is necessary is to wipe out the cavity and close. If there is a connective lining, remove as much of it as possible. If it is a solid mass of osteitis fibrosa, remove by curetment. Some authors advise cautery, but this does not seem to be necessary, although it does no harm.

If the bone cyst is large, the shell should be crushed and the cavity filled with the fragments. If the cavity is unusually large, sometimes it is advisable to use a bone transplant to hasten healing.

If there is much bleeding, it is sometimes necessary to pack with gauze, close, and keep wound sterile for three or four days, after which gauze is removed and transplantation is done if necessary.

The occasional extremely huge bone cyst should be operated on with great caution, due to the tendency of hemorrhage, if much resection is done. As little as possible should be removed, and one must always be ready for amputation if hemorrhage is extreme.

CASE REPORT

Patient, a Mexican male child, seven years of age, was perfectly well until Sunday, April 15, 1928, when he fell while playing. Did not seem like a bad fall, but the child complained a great deal of pain in the right arm and refused to use the same. There was swelling and tenderness over the bone of the upper half of the arm. Monday, April 16th, the child was taken to a physician, who examined the arm but found no crepitation or other evidence of fracture, and told the parents the injury was not severe, probably only a bruise. The child, however, continued to complain and on April 25th, ten days after the injury, the child was brought to the hospital for examination.

On direct questioning, the parents were positive the child had not complained of pain in the arm previous to the injury, and they had noticed no swelling or enlargement previous to this time. History was also negative for trauma to this arm previous to injury on April 15th.

Past history was negative except for an occasional cold. He had had no infectious diseases or any other severe illness.

Family history was negative for tuberculosis or any other disease.

Examination: General examination was essentially negative. Local examination showed swelling and induration about the upper half of the right humerus, with marked tenderness over this area. The lower half of the humerus was easily palpable, felt normal, and was not tender. As one passed up the arm, however, you came upon a firm swelling that seemed connected with the bone and was very tender. There was no crepitation or evident movement of bone ends, no angular deformity, no palpable fracture ends. Skin appeared normal.



Fig. 1

X-ray showed an evident fracture through a rarified area in the upper third of the right humerus. (Fig. 1.) There was slight expansion of the cortex, but the bone shell was intact except at the fracture line. Slight callus formation was already visible.

Diagnosis: Diagnosis of bone cyst with pathological fracture was made.

Treatment: Treatment was conservative. The arm was put up in an aeroplane splint. There was no deformity and traction was unnecessary.

Subsequent x-rays have shown healing of fracture and probable ossification of the bone cyst, thus confirming diagnosis.

COMMENT

An effort has been made to give a fairly comprehensive review of the subject of bone cysts, with no attempt at originality. Words of other authors have been used extensively, especially those of Joseph Colt Bloodgood.

The case presented seems quite typical of bone cyst with pathological fracture, followed by healing and ossification.

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VINCENT'S INFECTION ABOUT THE GENITALS, WITH REPORT OF CASE OF UTERINE INFECTION

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(Read before the thirty-seventh Annual Meeting of the Arizona State Medical Association, held at Tucson, Ariz., April 19-21, 1928.)

The subject of infection by Vincent's spirchete in association with the bacillus fusiformis, has been the subject of numerous papers and much confusing discussion. It is ordinarily regarded as an infection limited to the mouth and upper respiratory tract, until the term "angina" has become rather firmly fixed in our minds when thinking of Vincent's disease. However, it has been repeatedly proven that these organisms can be the cause of infection almost anywhere in the body—throat, lungs, skin, testinal tract, and genital tract. Davis and Pilot, in their comprehensive study on these organisms, reported in 1922, found them normally in four important areas of the body, namely, the throat, about the teeth, about the appendix, and about the genitals;

in the latter cases, they were found under the prepuce in the male and about the clitoris in the female. They are normally saprophytic, but become virulent under favorable conditions and produce widespread lesions. Among the lesions in which these organisms are found are the usual Vincent's angina, ulcero-membranous gingivitis, noma, pharyngomycosis, pyorrhea, putrid alveolar abscess, putrid pneumonia, lung gangrene, bronchial spirochetosis, putrid otitis media, erosive balanitis, necrotic ulcers of the vulva and vagina, intestinal spirochetosis.

The same authors, in a further study (Arch. Derm. & Syph. Nov., 1924), discuss the distribution of these organisms about the genitalia of normal women. Fusiform bacilli and spirochetes were found in 58 per cent of normal women about the clitoris, though hardly ever in the vagina, where conditions are not normally favorable for their existence. They found them important infecting agents in syphilitic lesions of the vulva, erosive and gangrenous vulvitis, condylomata acuminata, necrotic fibroids and carcinoma of the uterus and vagina.

The work of Brams has established the occurrence of these organisms about the genitalia and their association with a number of lesions in this area. He found that the preputial secretions of 50 per cent of 100 men investigated showed these organisms, and in twenty-one of thirty-six pregnant women, the normal smegma contained them.

The fuso-spirochete organisms belong to a group of bacteria very aptly called, by Davis, opportunists. By this is meant that they are commonly found about the body, leading a saprophytic existence, but capable of developing pathogenic powers under favorable circumstances. Under such favoring conditions, they develop rapidly and cause extensive lesions.

It is a recognized fundamental principle that the distribution of infectious processes in the body is largely determined by the normal distribution of such opportunist organisms; for example, the staphylococcus, which normally inhabits the skin, is the cause of most skin infections; the streptococcus normally occurs in the throat and upper respiratory passage and most streptococcus infections appear in these localities.

From the tonsillar location, these organisms cause the well known Vincent's angina; from the teeth, the ulcerative gingivitis, alveolar abscesses, pyorrhea alveolaris, putrid otitis media, pulmonary abscess, gangrene and spirochetosis of the lungs.

The course of this infection is usually one of severe illness, the temperature running a typical infective course. In the

severe type, the patients have very severe chills with a temperature ranging around 104 or above. As the chill subsides the temperature falls to around 100, exacerbations usually occurring from ten to fourteen hours apart. As the disease progresses, the chills become more frequent and the temperature higher, until the patient finally succumbs.

Following is the report of this infection occurring within the uterus:

CASE REPORT

Female, age 33, entered the hospital on Feb. 28, with the following history: Strong, healthy woman up to about three weeks ago. About Feb. 5th, had had a criminal abortion. The uterus had been packed on two different occasions until fetus was expelled. On Feb. 11th, patient began having chills and running a high temperature, three chills coming on at about 12 hour intervals and lasting for about one hour. At this time, temperature would go up to between 106 and 107.5. rectal. Patient was becoming more weak each day. What treatment had been given, I do not know. I was asked to take charge of the patient on Feb. 28th.

Examination at this time showed patient extremely sick, with worried expression, very anemic; rather hard of hearing and unable to talk without considerable exertion.

Head and neck negative. No enlargement of thyroid. No cervical adenitis.

Chest rather thin, equal expansion on both sides. I was unable to find evidence of pulmonary pathology.

Heart normal in size and position. Very rapid in action although heart beat was regular.

Respiration normal.

Abdomen flabby, no areas of tenderness on palpation.

Vaginal examination: No vaginal discharge and no discharge from cervix. Uterus slightly larger than normal but apparently not tender. Ovaries normal. No tumors in pelvis. A tentative diagnosis of streptococcic septicemia was made.

On admission, temperature was 101, patient was perspiring profusely and was having a chill. Temperature during time in hospital ranged from 99 to 106.5, usually dropping twice in twenty-four hours. Blood Wassermann negative. Spinal fluid Wassermann negative. Widal reactions were negative to typhoid and the paratyphoids A and B. Malta fever agglutination test negative. Blood was negative for malaria.

Urinalysis showed slight trace of albumin, many pus cells. Hemoglobin was 30 per cent, erythrocytes, 1,570,000; leukocytes, 7,600. polynuclears 90 per cent. Spinal fluid was clear, no increased pressure; cell count seven. Smears were made and no bacteria found. Cultures were negative. Examination of stools was negative.

Because of the low hemoglobin, on March 1st, patient was given 60 c.c. of blood by transfusion, but, due to the reaction, no more could be given. She was put on general expectant treatment and for a while appeared to get better, although was unable to make a definite diagnosis, but assumed there was some retained portion of the products of conception in the uterus. Considering the history given by patient, I was reluctant about tampering with the inside of the uterus.

On March 7th, patient developed a vaginal discharge. Smears were made, showing numerous spirochetes and fusiform bacilli, morphologically resembling Vincent's angina. Hemoglobin was 25 per cent, patient was transfused and 700 c.c. of blood given with no reaction, and she felt better for two days. She was given three injections of salvarsan, intravenously, and this was repeated in 24 hours.

Patient began growing progressively worse, nearly pulseless, cyanotic, cold and clammy, with all signs of impending death. Expired March 11th.

Autopsy report: Uterus slightly enlarged, shows a mass attached over a large base protruding into the lumen. The cervical portion shows hemorrhagic extravasation and membranous exudate on the surface. Microscopic sections, including both uterine wall and intra-uterine mass, show embryonic structures having undergone marked inflammatory change and degeneration, evidently representing retained and degenerated placental tissue.

Smears from uterus show spirochetes and fusiform bacilli morphologically resembling Vincent's angina. Culture shows organisms of staphylococci, streptococci and colon-like bacilli.

DISCUSSION

DR. D. F. HARBRIDGE, Phoenix (opening): This paper is exceedingly interesting from several points of view. In the first place, the character of the blood picture fits in so exactly with one of the recently published Cabot cases, in which a young man employed in a rubber factory gave a certain blood picture which made it difficult to determine whether he was suffering from poisoning from the rubber material or from Vincent's angina, and the final diagnosis was Vincent's angina.

The case is of interest to me from another angle. This particular case shows the absolute viciousness of criminal abortion. I cannot go into details though I feel it keenly, because I knew this girl and had protected her for five years. To think that a man, a member of a county society affiliated with this organization, instead of lending moral support to a woman I had taken care of for five years, would deliberately, for the sake of a paltry sum of money, do a thing of this sort, makes my blood boil. Undoubtedly her death was due to the abortion, very probably because of the dirty instruments or dirty hands of this abortionist.

DR. W. WARNER WATKINS, Phoenix: I became interested in looking up the literature on Vincent's infection, when Dr. McIntyre reported this case in staff meeting. I was astonished to find out the extent of this infection in the human organism. Apparently it is responsible for nearly all of the infections accompanied by fetor, as we ordinarily see them. The angina from which the infection originally acquired its name (Vincent's angina) is only one of the minor manifestations.

In addition to the gangrene and bad odor, there is a marked anemia produced by Vincent's infection, and it is probably the cause of the anemia accompanying many malignancies where there is secondary infection and necrosis. In carcinoma of the uterus, the fetor is probably caused by this organism, and much of the anemia.

In making examination for Vincent's infection, it must be remembered that we will not secure results by culture, as the organism does not grow on the ordinary culture media. They are found in direct smear from the lesion or from the infected material—sputum, pus, tissue, etc. Furthermore, the pathologist should be informed about what the clinician is looking for, as the staining for Vincent's is a special process, and the organisms might be entirely

overlooked, unless proper cooperation is accorded the laboratory consultant.

This paper and report is interesting, not only because it is the only reported instance of infection within the body of the uterus which we could find, but because it again calls to our mind the importance of this organism and the widespread distribution of the lesions caused by it.

DR. J. I. BUTLER, Tucson: It seems that, in this case, salvarsan given intravenously could hardly be expected to reach this sloughing mass in the uterus, which was producing its toxin. It is possible that, if the drug had been applied directly into the uterine cavity, it might have given better results.

DR. O. H. BROWN, Phoenix: I recall one case recently in which a man had a number of teeth pulled. One of the areas not clearing up, we found this organism. He was given salvarsan intravenously and locally, but did not clear up; then perborate was used, as brought out by some El Paso man years ago. Infection cleared up promptly.

DR. J. J. McLOONE, Phoenix: From the nose and throat standpoint, we get many cases of Vincent's without apparent lesions. Dentists frequently pick these cases up. I should like to emphasize the importance of making smears as well as cultures. Cultures are necessary, because the infection is usually associated with streptococci and staphylococci. In treating these, we follow practically the method of the late Dr. Stark, whom we should remember as the promulgator of the use of sodium perborate. I find that the quartz light in conjunction with the perborate is very effective; it is surprising how quickly the cases will clear up with that line of treatment. In regard to salvarsan, it has its place in Vincent's angina, but must be applied directly in rather concentrated solution. I have used it occasionally and dentists use it constantly with good results.

DR. W. O. SWEET, Phoenix: I should like to emphasize the point about using smears. I make it a routine practice to take smears as well as cultures in every case of cervicitis that I treat or examine. You will be surprised at the number of organisms you do not get on culture. Smear has considerable value, and I do not know why it has gone into disuse. It will save grief to make both.

DR. W. L. BROWN, El Paso, Texas: Since the subject has come up about sodium perborate, I will clear up a point about the Stark method. This is not applied in solution, but, with a wet swab, the powder is packed directly upon the lesion, wherever the lesion is. That is much better than using it in solution. When wet, it gives off free oxygen, and in solution soon loses its efficiency. Keep up the application continuously, reapplying it as needed. I have seen some desperate cases get well.

DR. A. J. McINTYRE, Phoenix (closing): It is very true that the bacillus fusiformis and Vincent's spirillum are associated with the streptococcus. Some authorities have found out that, if a section of infected tissue is examined, in the bottom of this tissue an almost pure growth of spirilla will be found; in the middle will be many spirilla and some fusiform bacilli, and on the surface will be many of both, with streptococci. Some are beginning to believe that the streptococci are later forms of the fusiform bacillus. In the treatment, we use concentrated solution of neosalvarsan; that is, .4 Gm. dissolved in five minims of sterile water. It will dissolve in that amount of water and, if you can use it as a topical application to an area of Vincent's infection every two hours for one of two days, and then follow with a ten per cent solution of copper sulfate, in a few days it will clear up the infection. One authority says this is better than the perborate.

OCCIPUT POSTERIOR POSITIONS Their Importance, Diagnosis and Treatment

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Occiput posterior positions of the fetal head are probably the most frequent cause of pathological labor with resultant morbidity and mortality of both mother and child, especially the latter. At the same time it is a condition that is usually responsive to proper treatment, but often leads to disaster if not recognized until late and if improper treatment, or no treatment at all, is instituted. There is nothing new or original that can be added to recent discussions of this anomaly, yet there is an object to be gained by keeping it fresh in our minds and to summarize the important facts regarding it and the important steps in its treatment.

That it is a frequent occurrence is well attested by the fact that most observers find it in a large percentage of vertex presentations. The opinion of obstetricians of unquestioned ability would indicate that the incidence is around 20 per cent. Barnes, in a recent article, feels that it may occur in as high as 25 per cent of all cases of labor. A more recent observation from the Edinburgh Royal Maternity Hospital states that the abnormality occurred in 18 per cent of vertex presentations. Potter, of Buffalo, states that he finds it in 60 per cent to 70 per cent of his cases because he examines them early, before rotation has occurred. I feel that this is much too high to find a counterpart in the average obstetrical practice as my cases are carefully watched and it is felt that the previous figures are more accurate. At any rate, the condition is met frequently enough to assure us of its importance as a pathological factor in childbirth.

It cannot be said that all these labors begin as occiput posteriors. De Lee believes that the head in most instances enters the pelvis in the transverse and careful watching will show that this is true in the average labor. Normally rotation must then occur to occiput anterior, which fortunately occurs in the majority of instances, especially when the occiput is on the left. Probably only 3 or 4 per cent of occiput posterior positions occur on the left. There seems to be more of a tendency for a right occiput position to become posterior which may be due, among other reasons, to the fact that the right half of the pelvis is a bit flattened in most individuals and the left oblique a trifle shorter than the right. In either transverse, if the patient is closely watched during descent of the head in labor, a somewhat posterior position may be

found to exist for a short time, later rotating anteriorly and lending nothing of the abnormal to the observation of the attendant. There being no other pathology, these cases can hardly be termed as abnormal when labor is progressive and terminates spontaneously in the usual manner. All too many, however, rotate posteriorly and become persistent, calling for judgment and skill on the part of the doctor.

If we accept the statements of authorities in this matter we must give more than a passing thought to this condition. While De Lee admits that it is not possible to hazard more than a guess, he believes it safe to say that 5,000 of the 100,000 babies who die in the United States every year during the course of labor die because of the position in which they unfortunately have been placed for delivery. Conversely, he feels that the majority of these babies could be saved if the mechanism, course and treatment of this form of dystocia were understood. It strikes us with greater force when Hirst tells us that there is more than a 9 per cent mortality rate for the babe. De Lee further assures us, and his experience and judgment is unquestioned, that the morbidity and mortality of the mothers from this cause is tremendous and devastating. The mother suffers from pain, exhaustion with resultant lowering of resistance to infection, hemorrhage, and frequently terrible lacerations either from a final spontaneous delivery of an abnormal position or from misdirected surgical intervention. In this connection we are further told, "The condition itself and the operations performed by reason of it, cause untold and untellable suffering; the children's brains are damaged, the mothers' soft parts lacerated and destroyed. I am convinced that, in the United States, ten times as many babies are lost from this complication as from contracted pelvis." Barnes notes, however, that some degree of contracted pelvis is frequently coincident or a causative factor in the anomaly.

The causes of this anomaly are numerous, and a discussion of them would be didactic in nature. It is well to remember that disproportion either way between the fetal head and the bony pelvis may exist. Pelvic deformities are frequent. Variations in the shape of the fetal head, an arm prolapsed under the occiput, the presence of tumors, an abnormal pelvic floor which does not assist in rotating the head, and other conditions infer that the cause is frequently mechanical and should be studied from that viewpoint.

We are taught that clinically there are

two main types. In the first the head stays high and will not engage in the pelvis. This class is rarely met with and is the hardest to treat since labor usually comes to a standstill or some other anomalous position develops. In the second type the head engages in the pelvis where the occiput may rotate anteriorly, or the head stops in deep transverse rest, or may deliver in the transverse, or may rotate backward to the hollow of the sacrum, becoming a persistent occiput posterior or occiput sacral. Even then Nature sometimes, frequently at terrific cost, affects spontaneous delivery. This mechanism is mentioned merely to remind us of the danger to mother and babe unless proper help is given. Frequently in this type of case difficulties are met with from the start of labor. The bag of waters may rupture early. The head does not descend properly against the cervix and into the pelvis so that the pains are frequently weak and ineffectual. Labor drags on without evidence of progress, exhausting the patient, frightening the family and worrying the doctor. Dilatation of the cervix is slow and the elapsed time for a normal labor is long past before the time for operative interference, outside of cesarean section, is at hand.

Diagnosis of an occiput posterior position is, of course, the first step in the proper management of such a case. Failure to do so early, and worse yet, not at all, is frequently disastrous. I feel that the ability to accurately diagnose the position of the fetus in utero, both before and during labor, is absolutely essential whether a physician's obstetrical practice consists of one or a thousand patients. Fetal position cannot be accurately diagnosed by the position of the fetal heart tones, and nothing less than accuracy will do in the proper treatment of an occiput posterior position. A systematic, routine method of diagnosing fetal position should be practiced during the latter weeks of pregnancy and during labor. There are several points in this technique. The direction, whether longitudinal, transverse, or oblique, of the long axis of the fetal ovoid should be ascertained. The contents of the fundus is then determined, whether there is a ballotable head, or a breech or small parts. Attention is turned to the inlet and the fetal part present there, and to the head, whether it is floating, movable or fixed. By palpation the cephalic prominence, which is usually the forehead, is found. Polak's maneuver may help and an effort should be made to determine the direction of the sagittal diameter. Care is taken that the head is not

in extension and that the cephalic prominence is not the occiput, as sometimes occurs. Finding fetal small parts on the same side gives assurance, and also the fact that the fetal body is in flexion throughout like the letter "C", and not extended as a modified letter "S". A shoulder is also felt for, but its location is only of moderate value. The average text book does not properly emphasize the importance of continually practicing this observation.

Quite readily then, except in fleshy women and occasional unusual cases, when the patient has been observed during the latter days of her pregnancy and in early labor, the existence of an occiput posterior position can be determined. It is true that fetal position may change between examinations. In fact, the head may rise out of the inlet and come down in the direct opposite position. In some series of cases, according to Miller, 60 per cent of the labors which start as occiput posteriors, rotate anteriorly and deliver spontaneously. Likewise, many cases beginning as an occiput anterior, or transverse, rotate posteriorly either temporarily, or become persistent. As labor progresses and the head sinks into the pelvis, determination of its exact position from external examination becomes more difficult. In most cases of posterior positions of any marked degree an easily noticeable concavity, or hollow, is seen above the pubis, most apparent when the abdomen is viewed in profile. Internal examination, when the cervix is sufficiently dilated, may be necessary to establish diagnosis, and is imperative in the not infrequent cases where certainty is difficult to establish. In favorable cases and with experience, the rectal examination may be sufficient, but under proper antiseptic and aseptic precautions a vaginal examination is frequently preferable unless the case is potentially infected from some known focus, or if there is a possibility of a cesarean section being necessary later. Especially then, if there is early rupture of the bag of waters, slow progress, with weak, irregular pains, the head remaining high at the inlet of the pelvis, or after descending into the pelvis and the advent of hard pains makes no progress, more so in the absence of disproportion between fetus and pelvis, we should suspect an occiput position and properly examine the patient if we have been so negligent as not to have done so before.

In the treatment of these cases, the successful management is usually a question of knowledge of such cases tempered with judgment. Nowhere else in obstetrics can meddlesome midwifery find such an oppor-

tunity to do harm. In contrast, seldom does obstetrical judgment have the opportunity to do good and successfully terminate a case otherwise disastrous. In many cases the attendant is perplexed by the weak, nagging, unproductive pains. It is frequently found that the head is high, possibly partially deflexed, and is not entering the pelvis properly to make pressure upon the great cervical plexus. Instructing the patient to lie on her side toward which the fetal back points frequently presents the occiput to the pelvic inlet with resultant descent of the head and a tendency to rotate anteriorly. In any labor, if a woman wants to lie on a side, I think the position of the fetus should be determined, and the patient should be at least told what side **not** to lie on, as I have seen deflexion occur with dystocia from lying on the wrong side persistently. Again, in deflexion attitudes, when the cervix is sufficiently dilated Hodge's maneuver may be tried at the time of the vaginal examination, the sinciput pushed up while the occiput is pushed down with the outside hand. It is granted that the obstetrician has previously made himself familiar with the pelvis, and before extensive vaginal manipulations, and before the opportune time for a cesarean section has passed, he should be absolutely sure that delivery can be effected from below.

Then when mechanical abnormalities are removed, we have a classical means of stimulating pains. The giving of a large dose of castor oil or a hot enema, or both, sometimes proves effective. This is especially useful if pains do not start with the rupture of the bag of waters. The mother should be encouraged to walk about, but should not be exhausted. Quinine should be given guardedly, especially since we now frequently use Gwathmey's synergistic analgesia in these cases. Pituitrin rarely has a place here and so rarely indeed that I have used it only once, a dose of two minims to start the pains again after a rest of fourteen hours from morphine. Ether was necessary in this case to control the pains when they did start.

After many hours of unsatisfactory progress due to weak pains, many cases respond with good pains after a night's rest induced by morphine, supplemented where indicated by Gwathmey's synergistic analgesia. It is to be remembered that neither the mother or fetus is in any particular danger except that of exhaustion of the mother, as long as the membranes are intact. The membranes should not be ruptured to induce pains in this position unless the cervix is dilated or nearly so. Where the membranes are ruptured prematurely and the pains are

not productive, the head high, or the cervix tough and unusually slow in dilating, the hydrostatic bag may prove the only solution. If one is sure of his aseptic technic, Bauer's procedure of replacing the lost liquor amnii by physiological salt solution may be used in certain instances where there is a tendency for retraction of the uterus about the fetus with resultant danger both of asphyxia of the child from insufficient aeration of its blood, and almost inevitable serious difficulty in subsequent delivery. It is especially worthy of consideration when a version is indicated and is reported to render that operation easy when otherwise impossible from the above conditions. Cases are frequently seen where the pains are severe, the contractions good, and other conditions, such as pelvic measurements, satisfactory, but the rigid cervix fails to dilate due to spasm of the os. Toneff here advises morphine and atropine and prefers to administer the combination in suppositories. The dreaded contraction ring sometimes disappears with the giving of adrenalin hypodermically. Guarding the mother then against infection, exhaustion, adding to her comfort, watching the descent of the head into the pelvis and the dilatation of the cervix, aiding the normal mechanism, and supplanting Nature only when she fails, is the conduct of the first stage.

As previously stated, probably two-thirds of occiput posterior positions rotate anteriorly and are delivered spontaneously. Proper flexion of the head, whether occurring in the normal mechanism of labor or produced by the well-timed and proper maneuver of the skilled obstetrician, aids in this spontaneous anterior rotation. The mechanism of the occiput striking the muscular hammock formed by the muscles of the pelvic floor is amply discussed in all good textbooks. Spontaneous delivery in certain of these cases is a tribute to the skill of the physician just as much as if the delivery were instrumental and much more spectacular. In fact, in many cases where instrumental delivery is necessary it might have been different had the conduct of the earlier stages of the labor been proper. However, there is a definite proportion of occiput posteriors that must be delivered by operative interference in spite of every conscientious effort to make it otherwise. Such a delivery is frequently the final expression of the knowledge and skill which the obstetrician has exhibited or should have exhibited throughout the conduct of the case.

The operative delivery must be adjusted to meet the varying conditions found in these cases. If the head remains high, if

the pelvis is known to be small, the woman a primipara, especially if advanced in years with tough, resistant pelvic tissues, a cesarean section is easier to do and is safer, especially for the infant, than delivery from below is apt to be if conditions for the abdominal operation have been fully met.

Version undoubtedly has a place in similar cases where the head is high, the case neglected and cesarean section contra-indicated. Ample pelvic dimensions of course are desired, and the bag of waters not too long ruptured. The skill of the operator in this maneuver is a big item and in many instances it is to be preferred to high forceps.

It is to be remembered that the early part of this article was devoted to means of bringing the head into the pelvis and in many cases proper treatment coupled with sufficient time will mold a head down into the pelvis and a far easier delivery results thereby. The fretfulness of the patient, prayers of the family, the impatience of the physician, or his fear that the failure of the patient to deliver immediately casts a reflection on his ability as an obstetrician is frequently the cause for too early attempts at delivery, followed by disaster. Only rarely is it necessary in a well conducted case to operate before the head has entered the pelvis and complete dilatation of the cervix has taken place. Certainly it is occasionally necessary to do otherwise, but the necessity is regretted as the difficulties of the operation pile up and the extent of the damage to the mother and child are later viewed. Unless manual dilatation of the cervix in such instances is easily accomplished, Dührssen's incisions of the nearly dilated structure in a clean case should be done and later repaired.

Properly conducted to the point of operative delivery, we usually find the head engaged in the pelvis lying in the transverse, or one of the posterior positions, or occasionally existing as an occiput sacral. Some deflexion attitudes such as a brow presentation may be present but it is supposed that attention has been directed toward such possibilities much earlier in labor. In the usual type of case delivery may be accomplished by the use of the Kielland forceps in effecting anterior rotation and subsequent delivery. The Scanzoni maneuver was formerly the method of choice. There have been recent modifications of this procedure, but their success, especially in avoiding damage to the pelvic structures, is dependent upon a high degree of training and skill.

In the average case the method of choice includes the detail of protecting the perineum by manual stretching which is pre-

ferred by some, or by a medio-lateral episiotomy. The head is freed from the grasp of surrounding structures and mobilized. Sterile green soap has made successful many such a difficult detail. The head is rotated with the whole hand in the vagina and grasping the occiput, the left hand being used for right positions, the right hand for left positions, while the outside hand gently strokes the shoulder in the desired direction and prevents the head from escaping out of the pelvis. The forceps are now applied and I prefer De Lee's modification of the Simpson. Ordinarily there is no serious difficulty, but when the head persists in returning to its original abnormal position while the forceps are being applied, the right blade may be introduced first and the locking of the handles accomplished with some maneuvering. It is taken for granted that there has been no mistaking the actual position of the head, realizing that certainty in this matter can always be obtained with the feeling of an ear. Listening to the fetal heart tones every few seconds, and making moderate traction in the proper axis of the pelvic canal, in other words, proceeding with a properly executed forceps delivery should produce gratifying end-results.

SUMMARY

Occiput posterior positions are a relatively frequent complication of labor. Maternal morbidity is high, and the death of the fetus frequent, if the condition is not properly treated. Diagnosis of the anomaly is all-important. Close observation of the patient with conservative treatment until complete dilatation of the cervix and proper moulding of the head has occurred, is best during the first stage. Failure to rotate anteriorly and deliver spontaneously when the cervix has been completely dilated for a reasonable length of time calls for skillful operative interference. At this stage, most cases can best be delivered by manual rotation of the head and forceps extraction, the perineum being protected in the primipara by episiotomy.

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DERMATITIS GANGRENOSA

LESLIE M. SMITH, M. D.
 El Paso, Texas.

(Read before the El Paso County Medical Society, May 14, 1928.)

Aside from the gangrene produced directly by physical or chemical trauma, that as-

sociated with the vascular and neurovascular disturbances such as thrombo-angiitis obliterans and Raynaud's disease, and that fairly commonly associated with diabetes, a rare type of gangrene involving the skin has been described by Wende¹, Hartzell², Lancashire³, and others, as dermatitis gangrenosa, which is a more or less definite entity. This condition is also described as dermatitis gangrenosa infantum when it occurs in children following the exanthemata, typhoid, and other debilitating diseases; and as multiple gangrene of the skin. These are descriptive terms which do not apply to the case here reported, this case occurring in an adult, and having no tendency to autoinoculation or multiplicity.

The disease is of infectious origin and occurs in individuals having a lowered local or general resistance. Local tissue resistance may be lowered by trauma, thrombosis or embolism. The general condition favoring the development of dermatitis gangrenosa may be brought about by various debilitating diseases: and several chemicals and drugs, such as carbon monoxide, ergot, and chloral in large doses have been accused of the same effect.

Various organisms have been found in the pus from these lesions, notably *B. pyocyaneus*, *B. diphtheriae*, and *staphylococcus*; and *B. pyocyaneus* and *staphylococcus* have been found in the internal organs in fatal cases.

The typical lesion of dermatitis gangrenosa begins as a purplish spot, which may or may not become bullous, followed by ulceration and rapidly spreading destruction of tissue. The lesions in the cases reported have usually been autoinoculable. After considerable destruction of tissue recovery is the rule.

CASE REPORT

Mrs. M. B., aged about 38 years, was seen March 26, 1928, through the courtesy of Dr. R. L. Marrett. Past history was negative except for malaria, a suspicion of tuberculosis several years ago, and some nervous trouble with occasional fainting attacks for several years. Several days before the onset of the present trouble the patient had a severe attack of renal colic and was in bed for several days. During the attack, 1 gr. of morphin was given in broken doses, and in addition to this the patient took two ounces of somnos, an unknown quantity of veronal and codeine which she had. As a result she slept for three days. During this three days a purple macule was noticed over the coccyx. In the course of the next two days this became bullous and ulcerated, the ulcer spreading rapidly for the next few days, destroying the skin and subcutaneous tissue. There was considerable pus of a foul odor exuding from around a gray slough. The depth of destruction was uncertain, and it was thought that there might be a perforation into the rectum, but after injections of gentian violet solution we were unable to

find any dye in the stools. X-ray at this time failed to reveal any bone pathology beneath the ulcer. The temperature hovered around 101 degrees. The urine was normal with the exception of a trace of albumen and a few pus cells. The Wassermann was negative. The blood count showed: white cells, 7,000; red cells, 3,500,000; polys 70 per cent; Hb. 80. Smear from the lesion revealed gram negative bacilli (probably *B. coli*), and gram positive diplococci.

The lesion at the beginning of treatment was an ulcer somewhat larger than a silver dollar, probably three-fourths of an inch deep, and containing foul pus and gray slough.

The ulcer was washed out with Dakin's solution every hour for three days, then every two or three hours. After this procedure was initiated there was very little spreading of the ulcer. On April 4, the Dakin's solution was discontinued, there being no odor and very little pus, and the lesion was treated with a 10 per cent aqueous solution of gentian violet three times a day. On April 5, the patient was able to walk around and was taken to the office for ultra violet treatment. This was repeated every two or three days, and on April 13 the ulcer was about 50 per cent filled with granulations, there was practically no soreness, and the patient was allowed to return to her home in another city.

This case is presented with the purpose of calling attention to an uncommon condition involving the skin and subcutaneous tissues, with rapid destruction and almost as rapid healing once the lesion is freed of infection. In this case it is thought the recent illness, the general depression resulting from large amounts of hypnotics, the anemia, and possibly pressure over the coccyx during the narcosis, were all etiological factors, which allowed the infection to produce this destructive lesion.

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DISCUSSION

In discussion of Dr. Smith's case, Dr. Leigh reported a case of extensive gangrene in a 4-year-old American, male child, as a complication of chickenpox. In the first year of life the child had had a violent gastro-enteritis but its health, until the chicken-pox, had been excellent. The eruption had been very heavy, with considerable constitutional reaction. A slough occurred in front of left ear at the site of a deep pock. This spread, with necrosis, to the periosteal covering of the cranium. On the same side, under the angle of the jaw, a similar necrosis with edema developed that left the jugular vessels and cervical nerves exposed. Other sloughs developed on the scalp, the dorsum of the feet, and the scrotum and the buttocks. Some serous foul-smelling fluid escaped but never any pus. Fully one-half of the scalp sloughed. The lesions first appeared edematous and hard, then black with a gray necrotic base. Peripheral extension continued in all lesions. The boy lived two weeks. Culture was not constant for any one organism. This condition occasionally accompanies chickenpox in the emaciated and probably can be classed as dermatitis gangrenosa. The case reported was apparently in excellent health prior to the chickenpox.

PLACENTA PREVIA

Report of Cases and Treatment

HARRY VARNER, M. D.,
El Paso, Texas

(Read before the El Paso County Medical Society, April 9, 1928).

The thirteen cases of placenta previa reported in this paper are taken from the obstetrical service at the City-County Hospital and do not include cases seen in private practice, for the reason that the latter cases are seen and treated under slightly more favorable circumstances. The cases admitted to the service at the City-County Hospital in almost all instances have had questionable internal examinations and other interference before admission. The postpartum care is given in a general surgical ward having infected cases, the same nurse having the care of both classes of cases. Therefore, the results in this series of cases are not as good as we expect to obtain in cases seen in private practice.

CASE 1.

Mrs. A. R., multipara, admitted to hospital February 15, 1925, had no trouble in previous labors. Last night began to hemorrhage and a midwife was called, who in turn, called a physician. Patient was seen by a physician this morning and referred to hospital.

There is slight bleeding but patient does not show any effects from hemorrhage. External examination indicates about eight months pregnancy with vertex presenting. Cervix is about one and a half fingers dilated. The placenta located on posterior wall and cervix, extending to anterior lip. The membranes were ruptured artificially and a tight abdominal binder applied with a pad above the fundus. Patient was left alone and began having pains the following morning. There was slight bleeding when pains first began but reapplication of binder forced the head down against cervix and stopped the bleeding.

Patient made a normal delivery of female child, weight five pounds, about 26 hours after admission. The placenta was expelled spontaneously and there was no excessive bleeding during or after delivery. Mother and child in good condition.

Patient made a normal recovery.

Diagnosis: Partial placenta previa.

CASE 2.

Mrs. C. Z., fourth pregnancy, admitted to hospital February 22, 1925. No trouble in other labors. Says she began hemorrhaging yesterday and was attended by a midwife who packed the vagina. The bleeding continued until last night, when she was sent to the hospital.

External examination shows about 7 months pregnancy, with vertex presenting—the cervix about two fingers dilated but rather firm and not thinned out—the placenta is implanted on the posterior wall and covers the os—several blood clots expelled. Because of the rigidity of the cervix the vagina was again packed firmly with gauze and a tight abdominal binder applied with pad above fundus. Patient began having pains and about 18 hours later expelled part of packing from vagina, and this was followed by considerable hemorrhage. With patient under ether the remainder of the packing was removed and the cervix was about four fingers dilated. With finger pushing up along anterior lip the placenta was separated from the

anterior lip and membranes ruptured artificially. With pressure from above the vertex packed off the placenta and there was no further bleeding. Patient delivered spontaneously, 45 minutes later, a stillborn female, weight 5 pounds. Baby made no attempt to breathe after birth. The mouth and throat were filled with amniotic fluid and blood. Patient had postpartum infection localized in pelvis. Temperature began to rise above normal on third day after delivery ranging from 100-103 for about 10 days, and then it began to show gradual fall to 99-100. Patient left hospital against advice on March 12th, eighteen days after admission. There was still slight tenderness over uterus and discharge was normal. Diagnosis: Partial placenta previa.

CASE 3.

Mrs. G. R., age 33, gravida 9. Admitted July 21, 1925. She has had four normal labors and four abortions. Patient thinks her last menstrual period began about October 15, 1924. Says she had a slight bloody discharge each month but this did not show for more than one day, except four months ago, when it was slightly more than usual, but she had not had any bleeding since, until about 2 a. m. this date, when she passed several large clots; and again at 8 a. m. she passed some more clots.

Abdominal examination would indicate about eight months' pregnancy. External examination shows cervix to be dilated about two fingers with an old laceration extending high up in cervix on left side. The placenta completely covers the os and seems to extend about two inches up on the anterior lip. There is moderately profuse bleeding. An attempt was made to rupture the membranes but this increased the bleeding. The vagina was packed firmly with gauze. A tight abdominal binder with pad was applied. After 24 hours, packing was removed and cervix about fully dilated. The membranes ruptured artificially and an easy version and extraction of 7-7½ months stillborn fetus, placenta delivered manually, uterus contracted well; flow normal.

Patient had temperature of 101 twenty-four hours after admission. Temperature went to 103, one time, two days after delivery, and then gradually dropped to normal. Patient was discharged in good condition August 3, 1925, fourteen days after admission.

Diagnosis: Partial placenta previa and postpartum infection.

CASE 4.

Mrs. C. H., age 29, gravida 5. Admitted to hospital September 18, 1925. Other labors normal; no abortions. Temperature 100 on admission. Patient having moderately profuse bleeding. The vagina was packed with gauze by interne and tight abdominal binder applied with pad above fundus. The packing was removed 12 hours later. The placenta separated from the margin of the anterior lip and membranes were ruptured artificially. Binders reapplied. Hemorrhage stopped. Patient delivered spontaneously. Mother and baby in good condition.

Patient had temperature 99-100 for several days after delivery and on one occasion it was 101. Mother and baby were discharged September 26, 1925, in good condition, eight days after admission.

Diagnosis: Partial placenta previa.

CASE 5.

Mrs. J. S., gravida 8. Admitted March 26, 1925. History of having a fall 3 weeks ago, followed by slight bleeding, also of having a profuse hemorrhage before admission to hospital. Pulse 120-130 and moderate hemorrhage soon after admission.

Examination shows vertex presenting but heart sounds are not heard. Cervix two and a half fingers

dilated and placenta attached to posterior wall and left side. Placenta covers os and extends about one inch up on anterior lip and right side. This margin was separated and membranes ruptured artificially. Large blood clots were passed out but there was no fresh bleeding. A number 4 Voorhees bag was put within the amniotic sac and light weight attached. A tight abdominal binder and pad were applied.

The bag was expelled 12 hours later, followed almost immediately by stillborn fetus. There was moderate bleeding following delivery of placenta but uterus soon contracted down firmly and bleeding stopped. Pulse went to 140 after delivery. The patient was given black coffee per rectum and hypodermoclysis. Patient had slight postpartum temperature, but did not go above a 100 at any time. Discharged April 15, 1926, in good condition, twenty days after admission.

Diagnosis: Partial placenta previa.

CASE 6.

Miss J. P., age 22, gravida 1. Admitted June 21, 1926. Patient was sent to hospital because of vaginal bleeding. Abdominal examination indicates premature baby with breech presenting. The placenta covers the os. The membranes were ruptured artificially through edge of placenta. A Voorhees bag was inserted within amniotic cavity and vagina packed with gauze. A tight abdominal binder and pad applied.

The packing and bag were removed after 23 hours, followed by moderate bleeding. The feet were pulled down and easy extraction done. Placenta delivered manually. Baby premature and cyanotic, died one hour later. Mother in good condition, normal puerperium. Discharged in good condition June 28, 1925, seven days after admission.

Diagnosis: Partial placenta previa.

CASE 7.

Mrs. G. M., age 26, gravida 5. Admitted August 16, 1926. Patient has had two normal labors and two abortions; patient referred to hospital by physician for placenta previa.

Examination indicates about 8 months' pregnancy with fetus in transverse position. On August 25, patient began bleeding freely. Under ether, membranes were ruptured through edge of placenta and Voorhees bag inserted into amniotic cavity. Light weight attached and tight abdominal binder and pad applied. Hemorrhage stopped. Patient had very irregular pains of poor character. The following day bag had not been expelled and was removed. Cervix almost completely dilated. Dilatations were completed manually. Version and easy extraction done. Patient began hemorrhaging profusely, due to atony of the uterus. Placenta delivered manually and uterus packed with gauze. Small laceration left side of cervix not repaired and not bleeding. Pulse 150 immediately after delivery.

The uterus packing was removed the following morning. Temperature was normal and pulse 114. Second day postpartum, patient had temperature 102.2, pulse 110. Third day after delivery, 104, with all signs of bronchopneumonia in both lungs. Patient continued to run high temperature and died September 4, 1926, ten days after delivery. Patient did not show signs of a localized infection in pelvis. The pulmonary involvement, however, was most likely due to a direct extension through the lymphatics to the lungs, following the delivery.

Diagnosis: Partial placenta previa. Postpartum pulmonary infection.

CASE 8.

Mrs. E. B., age 33, gravida 6. Admitted to hospital January 24, 1927, referred from prenatal clinic. Her other labors normal. She gives a history of

having slight bleeding for 5 weeks. There is slight bleeding after admission.

Examination indicates about 8 months' pregnancy with vertex presenting. Fetal heart was not heard. Temperature 99.2, pulse 108. The cervix one and one-half fingers dilated with placenta on posterior wall and covering os. The membranes were ruptured artificially and tight abdominal binder and pad applied; this stopped the bleeding. The patient delivered spontaneously, 36 hours later, a stillborn female child, weight about 5 pounds. Bleeding at delivery, normal.

Postpartum normal and patient was discharged January 28, in good condition, four days after admission.

Diagnosis: Partial placenta previa.

CASE 9

Mrs. M. N., age 33, gravida 15. Admitted to hospital February 24, 1927. Patient says she has had thirteen normal labors and one premature labor. She gives a history of bleeding for past three days. Having free vaginal bleeding on admission to hospital. Temperature normal, pulse 118.

Examination indicates about six months' pregnancy with vertex presenting. Vagina packed with gauze by interne. About 12 hours later (heart sounds R L Q) packing removed from vagina. Cervix about three fingers dilated. The placenta located on posterior wall and right side. The separated portion of placenta hanging free in the cervix. Several large clots passed but no fresh bleeding. Membranes were ruptured and tight abdominal binder and pad applied. There was no further bleeding. Patient delivered normally, 12 hours later, a stillborn female child. Bleeding normal at delivery. Patient had a normal puerperium. Discharged in good condition, March 6th, ten days after admission.

Diagnosis: Partial placenta previa.

CASE 10.

Mrs. J. O., age 42, gravida 12. Admitted to hospital August 16, 1927. Patient referred to hospital by City Nurse. All previous labors normal. Patient began bleeding two days before admission.

Examination shows about 8 months' pregnancy with fetus in vertex position. Fetal heart sounds not heard. The cervix about two and a half fingers dilated, with placenta located on anterior wall and left side, with free edge hanging in cervix. The membranes were ruptured artificially and tight abdominal binder and pad applied. This stopped the bleeding. Patient delivered normally, about 12 hours later, a stillborn fetus.

On day after delivery patient had temperature 101, pulse 100. The temperature ranged from 99 to 100 for three days more, except that on one occasion it went to 104. Temperature normal on fourth day after delivery. Otherwise puerperium normal. Discharged in good condition on August 25, five days after admission.

Diagnosis: Partial placenta previa.

CASE 11.

Mrs. J. T., age 42, gravida 13. Admitted to hospital October 20, 1927. Previous pregnancies and labors normal. Patient referred to hospital by physician, with history of profuse hemorrhage before admission.

Examination on admission indicates about 6½ months' pregnancy. Heart sounds not heard, temperature 100, pulse 108, respiration 20. The cervix about three fingers dilated. The placenta on the anterior wall and left side and covering os to lip on right side. Membranes were ruptured and foot brought down. This stopped bleeding. Patient delivered normally one hour later with no excessive hemorrhage.

On third day after delivery, patient had temperature 102; for four more days temperature went to 100. Otherwise puerperium was normal. Dis-

charged, Oct. 29, in good condition, nine days after admission.

Diagnosis: Partial placenta previa.

CASE 12.

Mrs. J. R., age 42, gravida 14. Admitted to hospital November 7, 1927. All previous pregnancies and labors normal. Patient referred to hospital by physician, with a history of profuse bleeding before admission. Patient having moderate bleeding on admission.

Examination shows about 8 months' pregnancy with breech presenting. Fetal heart sounds, left side. Membranes were ruptured and tight abdominal binder and pad put on. Patient was given quinine and castor oil later to stimulate pains. Patient delivered normally, two days later, female child, weight 4½ pounds. Patient had a normal puerperium. Mother and baby were discharged in good condition November 20, 1927, thirteen days after admission.

CASE 13.

Mrs. T. M., age 20, gravida 1. Admitted to hospital March 20, 1928, with moderate bleeding.

Examination shows about 6 months' pregnancy. Fetal heart sounds not heard. Cotton tampons removed from vagina. Cervix two fingers dilated; placenta on posterior wall and left side, extending well over os. The membranes were ruptured artificially, cervix and vagina packed with gauze to check bleeding. Tight binder and pad applied. Packing removed about 18 hours later and presenting part forced down against cervix. Patient delivered normally, about 12 hours later, a still-born fetus. No excessive flow at delivery.

Two days after delivery patient had temperature of 101. Temperature was 100 to 101 for four days, and then normal. Patient was discharged April 1, in good condition, eleven days after admission.

Diagnosis: Partial placenta previa.

The purpose of this paper has not been to discuss, in general, the different treatments of placenta previa, but to give the results of these cases treated under the existing circumstances and emphasize the general principle followed in their treatment. The plan followed has been to check hemorrhage and let the delivery take place as near normally as possible with safety for the mother.

First, a careful examination is made to determine the extent of the condition. Frequently rupture of the membranes and the application of a tight binder with an abdominal pad is all the interference necessary. The presenting part is forced down against the cervix and controls the bleeding. Vaginal packing has been used when the cervix is firm and not thinned out, or when the separation of the edge of the placenta would cause undue bleeding, and as a temporary measure. When bag or packing is used in the cervix, care is taken to have it inside the amniotic sac, thereby forcing the placenta against the cervix to check the bleeding. These cases should have as little manipulation as possible, as they are more likely to have an infection than is a normal case. When there is much bleeding after delivery, or the uterus fails to contract promptly, it should be packed with gauze,

in order to prevent further loss of blood—also a postpartum hemorrhage. The patients are given pituitrin and ergot immediately after labor; the ergot is continued daily about one week after delivery. The usual stimulants are used when indicated. Transfusion has not been done on any of these cases.

LYMPH STASIS AND DEATH, FROM FIXED, NARROW CHEST AND LARGE HEART, PRESSING THORACIC DUCT (A CASE REPORT)

ORVILLE HARRY BROWN, M.D., Ph.D.

Phoenix, Arizona

A male 29 years of age had pulmonary phthisis beginning in 1918—probably having been lighted up by the influenza of that year. He improved but had a relapse in 1920. In 1922 he had what he termed another attack of the "flu" which was followed by a re-activated tuberculosis of the lungs. He lost weight seriously in this illness. He had had the usual symptoms of a moderately active, far advanced, case of pulmonary tuberculosis tending toward fibrosis and arrest.

Eight to ten months after his last exacerbation he observed an increase in weight which at first seemed to be normal but later proved to be the result of an accumulation of fluid in his legs and abdomen.

My examination record made November the fifth 1923 is as follows: This is a slender man about five feet 11 inches in height who in no wise belies his years. The skin of the face is deep brown in color especially over the nose. The finger and toe nails are deeply cyanotic—the lips to a less degree.

The head and ears are negative except for a small white scar in shape of a cross above the right ear. The right pupil is definitely larger than the left but both react normally to light and accommodation. There is no nystagmus. The nose has a moderate grade of obstruction apparently from an old injury to the bridge. The tonsils are present but are innocent in appearance. The teeth are in good condition with the lower middle incisors on a bridge and one crown in the upper left jaw. The neck is negative.

The chest's respiratory excursions are limited markedly on the right and considerably on the left. The lateral width of the chest is normal or wider than expected but the anterior-posterior dimension is greatly foreshortened. The right lung has large apical cavitations with upward retraction of the diaphragm so that there is absolute flatness below the upper border of the fourth rib in the nipple line. Moist coarse rales are heard throughout the right lung. There is a moderate amount of induration and cavitation in the left upper lobe. There are dense pleural adhesions in both lung bases.

The heart is dilated so that the left margin is 14 cm. from the median line. The right margin cannot be outlined as it lies up against the liver or other mass which causes the flatness in the

right chest. A cardio-respiratory murmur is heard over most of the heart area.

The lower margin of the liver is three to four inches below the costal arch and is definitely palpable. It is firm but smooth. The spleen is not demonstrably enlarged. There is no fluid in the abdomen.

The legs have moderate edema especially of the skin on the inner and lower parts of the thighs.

The neurological examination is negative.

The fluoroscopic and x-ray examinations of the chest gave the following findings: There is well marked fibro-cavernous disease of both upper lobes. On the right there is evidence of old pleural adhesions and retractions (to the right) of the trachea and mediastinum and upward of the diaphragm. The heart shadow is normal in width but abnormally great in depth, with evidence of fluid in the pericardium.

Nine urinary examinations showed the specific gravity to vary from 1.020 to 1.040. All specimens were highly acid and contained traces of albumin. There was no sugar. Two specimens contained hyaline casts, and in one or two there were occasional blood and pus cells. The diacetic acid and acetone were regularly negative. It usually required over 100 c.c. of 1/10 normal sodium hydroxide to neutralize 100 c.c. of urine.

The chemical examinations of the blood showed. Sugar .10, urea .11 and nitrogen 36 mgm., per 100 c.c. The Wassermann and complement fixation reactions for gonorrhea were negative. The complement fixation reaction for tuberculosis was two plus positive.

The hemoglobin ranged from 110 to 120 by Talquist scale; the erythrocytes numbered 5,500,000 and leucocytes 10,500.

The diagnosis was: Cardiac dilation; passive hyperemia of the liver; anasarca of the abdomen and lower extremities, probably from adhesions within the chest involving the thoracic duct.

The treatment consisted of bed rest, massive dosage of digitalis, salt free diet and a small saline laxative each morning.

Course: So long as the rest cure was continued faithfully the patient improved; he thought he was able to get up and take short automobile rides. He evidently overdid; he relapsed. The swelling of the legs and abdomen became intense and the subsequent treatment had relatively little influence upon his condition except possibly to ameliorate his disease temporarily. Death came after a few weeks with an extreme anasarca of the legs, abdomen and lower portion of the torso.

Autopsy revealed that there was free chyle in the abdomen and confirmed the findings and opinions of the chest condition. The liver was greatly enlarged with central atrophy from passive congestion; the heart was greatly dilated with a moderate grade of hypertrophy of the muscle.

The conclusion was reached that the fibrosis of the lungs and the narrowing of the chest anterior-posteriorly gave the heart relatively little space so that it could not dilate without encroaching on adjacent structures. The swelling and atrophy of the liver was from passive hyperemia of a failing heart. The edema and fluid in the abdomen was from obstruction of the thoracic duct through the pressure of the large heart upon the duct. The enlarging of the liver upward as the result of the passive hyperemia helped materially to crowd the heart and not give it room in which to dilate, thus creating a vicious circle.

(The autopsy and laboratory examination were made by the Pathological Laboratory of Phoenix.)

THE NEW MEXICO MEDICAL SOCIETY Forty-Sixth Annual Meeting, at Albuquerque, N. M., May 10-12, 1928

(Continued from last issue)

SATURDAY, MAY 12, 1928.
House of Delegates.

At a meeting of the House of Delegates, called to order by the President, Dr. T. P. Martin (Taos) at 8:30 a. m., the following members were present:

Bernalillo County: Drs. E. C. Matthews; J. R. Van Atta; (Albuquerque).

Chaves: Drs. R. L. Bradley; H. A. Ingalls; W. T. Joyner (Roswell).

Colfax: Dr. C. B. Elliott (Raton).

Dona Ana: Dr. Dwight Allison (Las Cruces)

Eddy: Dr. M. B. Culpepper (Carlsbad).

Santa Fe: Dr. Robert Brown (Santa Fe).

Union: Dr. J. P. Powell.

Curry: Dr. H. A. Miller (Clovis).

Minutes of the meeting held on May 11, 1928, were read and approved.

Election of officers for the ensuing year was declared in order—with the following result:

President-Elect—Dr. F. H. Crail (East Las Vegas).

Vice-President—Dr. J. C. Kisner (Clayton).

Secretary-Treasurer—Dr. L. B. Cohenour (Albuquerque).

Members of Council for three years—Dr. Carl Mulky (Albuquerque). Dr. Dwight Allison (Las Cruces).

Delegate to A.M.A.—Dr. H. A. Miller (Clovis).

Alternate—Dr. J. R. Van Atta (Albuquerque).

Members, Board of Managers, SOUTHWESTERN MEDICINE—Dr. H. A. Ingalls (Roswell), Dr. P. G. Cornish Jr., (Albuquerque).

Committee on Hospitals—Dr. C. B. Elliott (Raton). Dr. M. K. Wylder (Albuquerque).

The Committee on Resolutions presented report as follows: "RESOLVED: That the New Mexico Medical Society in Forty-sixth Annual Session at Albuquerque, New Mexico, May 10-12, extends sincere thanks for the hospitalities extended and courtesies shown its members and visitors by,

The Bernalillo County Medical Society,

The Ladies' Auxiliary Society,

The Alvarado Hotel,

The Albuquerque Country Club,

The members of the press.

(Signed)

DR. W. T. JOYNER,

DR. DWIGHT ALLISON,

DR. J. P. POWELL.

This report was approved as read.

The Committee on Necrology submitted its report, as follows: "RESOLVED: That the New Mexico Medical Society notes with regret the passing from this life of the following:

Dr. Malcolm Montgomery Crocker, Lordsburg, N. M.

Dr. W. T. Murphy, Albuquerque, N. M.

Dr. F. F. Fadeley, Virginia.

Dr. D. C. Dodds, Albuquerque, N. M.

Dr. J. A. Massie, Santa Fe, N. M.

Dr. O. R. Haymaker, Roswell, N. M.

Dr. M. D. Welsh, Dawson, N. M.

Dr. J. B. Hughes, Anthony, N. M.

The secretary of this Society is directed to convey to the members of the families of the deceased, our heartfelt sympathy and an assurance of respect in which their memory is held.

(Signed)

DR. L. B. COHENOUR,

DR. ROBERT O. BROWN,

DR. CHARLES F. MILLIGAN.

The report was approved as read.

Selection of the next meeting place resulted in the unanimous choice of Taos, the meeting to be

held some time in June, the date to be selected by President Martin and Secretary Cohenour.

Dr. W. T. Joyner (Roswell) made motion that the secretary be instructed to telegraph Dr. C. M. Yater, Cleburne, Texas, former secretary-treasurer of the Society, who is in poor health, extending to him the felicitations and best wishes of the Society. Seconded and unanimously carried.

The question of physician's group liability insurance was brought up and received considerable discussion, with final result that the secretary was instructed to have insurance companies send blanks to the secretaries of the various county societies for distribution among their members, and it was suggested that the policy of the United States Fidelity and Guaranty Company be read at the general session so that the members present could hear the general terms and inducements offered.

Considerable discussion was devoted to the question of attempted legislation at the coming session of the Legislature, but no definite action was taken.

Adjournment at 9:30 a. m.

Scientific Session.

The morning session was opened by Dr. M. B. Culpepper (Carlsbad) with a paper on "X-ray Dermatitis," which covered the subject in a thorough, convincing manner. No discussion followed the reading of this paper.

Dr. Robert G. Packard, Denver, Colo., presented a paper entitled "Orthopedic Treatment of Infantile Paralysis," stating that "Infantile paralysis or anterior poliomyelitis is a comparatively recent affliction throughout the world, only three outbreaks having been discovered previous to 1885, the disease first appearing as an epidemic in Scandinavia, with most of the smaller outbreaks appearing in Sweden." The Doctor, for the purpose of description, divided infantile paralysis into three definite phases: the acute, or febrile; the convalescent, or early paralytic; and the chronic or late paralytic stage, each with its definite symptomatology and general plan of treatment, and outlined especially the orthopedic treatment of the disease.

In discussing the paper, Dr. C. F. Milligan (Clayton), stated that, in his opinion, control of this disease could be accomplished only through propaganda and education; that some physicians throughout the State deny the existence of infantile paralysis and have various diagnoses for the cases they see, which makes it very difficult for the Public Health Department to isolate and quarantine them.

Dr. S. L. Burton (Albuquerque) advocated keeping the patient in bed and absolutely quiet in the early treatment, stating that this was usually of great benefit and frequently resulted in complete recovery.

In closing the discussion, Dr. Packard said that children are extremely benefited by quiet and rest; that often when they are sick, the parents want them to exercise—to bend their knees and ankles, but this is a wrong thing to do, as the condition is often made much worse by massage or exercise. Much better results will be obtained if the child is kept in bed and perfectly quiet until the period of tenderness is over.

The question was asked if it was common for the disease to develop in babies under one year of age, to which Dr. Packard replied that the average age of children who contract infantile paralysis is around four years.

Dr. E. W. Phillips, Phoenix, Arizona, presented a paper on "The Role of Indiscriminate Tonsillectomy in Lighting Up the Tuberculosis Case," in which he cited a series of cases where tonsillect-

tomy was performed, with return of tuberculous symptoms in apparently arrested cases. Dr. Phillips emphasized the importance of thorough examination of the patient prior to tonsillectomy and stated there was a danger of tuberculosis developing with the removal of tonsils should the patient be a fit subject for the disease.

Discussion was participated in by Dr. O. S. Fowler, (Denver) who stressed the point that, if the general practitioner did not know how to make a careful examination of patients of this type, he should refer them to a chest man. "There is no excuse," he stated, "for doing a tonsillectomy in arrested cases of tuberculosis."

Dr. J. C. Kisner (Clayton) stated that, in his opinion, the cases in which a general anesthetic had been given should be ruled out; that, from the description of the cases, there were very few, if any, which were not tuberculous before the operation was done and he would blame the anesthetic before he would the operation in these cases.

In closing the discussion, Dr. Phillips stated that in the series of 36 cases which were apparently damaged by the operation so that active tuberculosis appeared soon after the operation, ether or gas and ether was used only twelve times, whereas local anesthesia was used 24 times. In his opinion, the physicians or surgeons who do a great number of tonsillectomies do not follow up their cases very well and he hoped the nose and throat men will follow their cases and tell us just how many of their tonsillectomies break down with tuberculosis.

Dr. Phillips was asked if there was any other type of operation upon which he might have a check wherein tuberculosis developed so soon after operation was performed and replied in the negative.

Adjournment for luncheon.

Dr. A. E. Forster, Colorado Springs, Colo., opened the afternoon session with a discourse on "Heliotherapy," which was fittingly illustrated with lantern slides.

In the discussion, Dr. L. S. Peters (Albuquerque) stated that it was time the sun we have in this desert country was utilized and we should acquaint the world with the fact; that in the past we have not made use of it as extensively as is done in the east, as it was not considered we have the right type of case. Most of the cases are of the pulmonary type and, up to recent years, we have been afraid to practice heliotherapy with that particular type; however, we should use it extensively in other types of tuberculosis—joint, intestinal and especially in the so-called hilus or lymphatic tuberculosis in children.

Dr. W. A. Gekler (Albuquerque) stated that he would like to see someone take a good healthy whack at those who say the alpine lamps are better than the sun in connection with treatment of certain types of tuberculosis. In regard to heliotherapy in cases of pulmonary tuberculosis, he stated that, "we used to do a good deal of it and I felt, in those cases with a lot of bowel involvement, putting them on heliotherapy cleaned up the bowel lesion and they did have a very good improvement in their general condition."

Dr. M. K. Wylder (Albuquerque) stated that, in his opinion, heliotherapy was not being used as much as it should be. He cited cases under treatment in St. Louis which improved remarkably under sun treatment from April to October when there was a large amount of sunshine, and would grow worse when put under lamp treatment in the winter months when sunshine was not available.

Dr. Forster, in closing the discussion, gave it as his opinion that we could handle cases much better in the southwestern country than in the east.

He stated that, in regard to the dosage in heliotherapy, any symptoms that the patient manifests are taken into account, and they must be given careful consideration. In many cases we get a temporary clearing up, with exacerbation of the condition later on. Tuberculosis of the soft palate, or various parts of the mouth, is extremely dangerous and a serious condition. He cited the case of a patient with a tuberculous ulceration in a tooth pocket, stating that the condition is finally clearing up and, from the appearance of the teeth, the man is going to get well.

General Session.

The General Session was called to order immediately after the close of the Scientific Session, President T. P. Martin (Taos), presiding.

The secretary's report, including a resume of the proceedings of the House of Delegates (which has been published in full under the minutes of the meetings,) was read, and adopted.

Dr. G. S. Luckett, Director, State Bureau of Public Health, Santa Fe, spoke in regard to the need of a state home and training school for mental defectives, stating that while the legislature appropriated funds which would take care of 50, the Child Welfare Bureau, through its field agents, has discovered and written up the histories of 496 such cases in the state. He urged the adoption of a resolution requesting the Legislature to continue to provide accommodations and submitted the following:

"BE IT RESOLVED, That the New Mexico Medical Society recognizes the need of the State Home and Training School for Mental Defectives and urges the Legislature to continue to expand the facilities of this school until adequate accommodations are provided for those who need this care in the State of New Mexico."

Upon proper motion and second, the question was put to a vote and carried, the resolution being adopted as quoted above.

Dr. Luckett then spoke upon the desirability and necessity for continuing the work already started with funds allotted under the Sheppard-Towner Act, explaining that the Federal Government's appropriation for this purpose will end on June 30, 1929, and that endeavor will be made to obtain an equivalent amount from the state. To this end he introduced the following Resolution:

"BE IT RESOLVED, That the New Mexico Medical Society urges the New Mexico Legislature to appropriate the sum of \$12,000 annually, in addition to other appropriations, for the use of the State Board of Public Welfare, said sum to replace an equal amount of federal appropriation which will be discontinued on June 30, 1929."

Dr. W. A. Gekler (Albuquerque), in opposition, stated that, while he was in favor of anything that would be for the good of the State Board of Health, he thought the morale of the average citizen had already been undermined by the encouragement received to lean on the government. "I am for public health work," the Doctor stated, "and no limit on the amount of expenditures, but when we get down to messing around in the individual homes and encouraging people to lean on the government, when we damage the morale of the citizen, we do worse than to cut his leg off."

Dr. W. T. Joyner (Roswell), said he was in hearty favor of the Health Department, but not in this sort of work. He believed in an increased appropriation for the Laboratory and hoped that would be obtained.

Dr. G. S. Luckett (Santa Fe) in defense of his resolution, stated that, "We have an infant mortality in this State of 140 per 1,000 live births—the highest infant mortality rate in the country.

This is purely a rural question. Shall we endeavor to save 50 per cent of these babies so they will grow up to adult age, or shall we allow false economics to take its course? If we are doing today in infant mortality work anything to 'preserve the lives of our babies, are we in a position to choose which ones we shall allow to live and which ones shall die? We are attempting to reduce infant mortality in this State by educating the mother to take care of her babies, by educating the pregnant woman on the proper care of herself and get her to a doctor for prenatal attention and delivery."

The question was asked if infant mortality had been reduced in the state in the last two or three years, to which Dr. Luckett replied that, while the records were not yet available, the infant mortality at one time was estimated as over 200 per 1,000 live births, whereas now it is considerably lower.

Dr. H. T. Miller (Clovis) said he was a member of the State Board of Welfare and thought Dr. Gekler's remarks very pertinent. On the other hand, he believed the whole solution lies in the education of the personnel, as it requires a particular psychology to indulge in this kind of work.

Dr. M. B. Culpepper (Carlsbad) stated: "As I understand Dr. Luckett, I do not believe that the Health Department will function even as well as it has without this \$12,000 and, in order for the organization to become more perfect, I think we ought to recommend it. I believe it is our duty to encourage the health organization and if we do not recommend its measures, then it looks as if we are opposed to it. Certainly we do not want to break the organization down, or weaken it in any way."

Dr. W. A. Gekler, (Albuquerque): "In saying what I had to say I had no idea of throwing a monkey-wrench into the machinery of the Public Health Department. I have never yet seen an organization that was as satisfactory as ours. The point I wanted to make was to be careful of keeping our balance and to keep these things, which seem to be increasing all the time, within bounds."

Dr. S. L. Burton (Albuquerque): "I think the amount is too large. We would be more likely to get action by making it a smaller amount. It seems to me, to have one nurse go through the state would do quite a bit of good and this could be done for much less than \$12,000. If we start with \$5,000 that ought to cover the expenses of one worker over the state, so my suggestion would be to reduce the amount asked to \$5,000. We would be more apt to get that amount through the Legislature."

Dr. G. A. Sheppard (Gallup): "Dr. Gekler brought up some very valuable points—some things we should all think about—but I have been a part-time health officer for nine months and I have been observing the work of the public health nurses and the way this money has been spent. It is not spent in buying things for the children or for the parents, but to enable the public health nurse to go into the homes and teach the mothers just the ordinary things we would expect young mothers to know and yet which a whole lot of them do not know—the use of soap and water—ordinary care of a baby and how to raise a child decently. I do not believe there is more money being spent than is needed, and, as one of the doctors stated, it takes a peculiar type of woman to carry out this kind of work. I feel that we need this \$12,000 for good educational work and this resolution should pass and this Society should stand back of it. We should help the Health Department so that it will not be crippled in the work it is doing. It is purely an educational work and you cannot get

too much of that in New Mexico at the present time."

Dr. J. C. Kisner (Clayton): "In the rural districts I have been in places where the women did not even know how to give a baby a bath, or how to feed it. I have known of the county nurse walking ten miles just to teach a mother these things. That is the kind of work these nurses are doing, and it is the kind of work for which this appropriation will be asked. This is the kind of work we need nurses for. We may not need them in the cities, but we surely do need them in every rural community in this State."

Dr. S. L. Burton (Albuquerque): "Dr. Kisner says we do not need that kind of nurses in the cities. I want to say that we need them right here in Albuquerque where we have a large population. Right in the vicinity of this building we have plenty of mothers who do not know the first principles of taking care of their babies. Twelve thousand dollars is not half enough to do that work and I move that the resolution be passed as read."

This motion was duly seconded and passed, the resolution being adopted.

The President, Dr. T. P. Martin, spoke in regard to the State Laboratory, stating that it has grown to such an extent that it is absolutely impossible to carry on the work, as there is no room to work in; that more space is needed and also more equipment.

Dr. G. S. Luckett (Santa Fe) stated that the University had been very generous in giving the Laboratory space, electric current and gas without any cost, but that it could not give any more space, and, as a result, it is almost impossible to move around in the small rooms. We should make some effort to raise money to put a building on the campus at the University that would house the Laboratory. We are not going to ask for an appropriation from the State for this because we feel that these other things we have discussed today for which we have to ask appropriations will be all that we can get.

Dr. S. L. Burton (Albuquerque) made motion that a resolution be adopted asking appropriation of \$25,000 to build a unit for the Laboratory, or to make a home for it in a State building in such a way that other units can be added to it as necessary.

This motion was not seconded and Dr. W. A. Gekler (Albuquerque) moved that the President appoint a committee of three to confer with a committee from the Public Health Association to make necessary arrangements about having a home for the State Laboratory when the plans of the University are being discussed, and at the proper time take the matter up with the authorities at Santa Fe.

This motion was seconded by Dr. H. T. Miller (Clovis) and passed, the President appointing as members of such Committee: Dr. W. A. Gekler, (Albuquerque), Dr. S. L. Burton (Albuquerque), Dr. Robert Brown (Santa Fe).

No further business coming before the meeting, adjournment sine die followed at 3:45 p.m.

NOTES ON THE MEETING.

Those registered were as follows: Dr. J. G. Holmes, Alamogordo; Dr. L. B. Cohenour, Albuquerque; Dr. Carl Mulky, Albuquerque; Dr. C. F. Milligan, Clayton; Dr. E. C. Matthews, Albuquerque; Dr. Robert C. Brown, Santa Fe; Dr. H. A. Miller, Clovis; Dr. C. W. Gerber, Las Cruces; Dr. C. B. Elliott, Raton; Dr. W. T. Joyner, Roswell; Dr. Dwight Allison, Las Cruces; Dr. J. P. Powell, Dalhart; Dr. Crum Epler, Pueblo; Dr. Z. G. Funk, Santa Rosa, N.M.; Dr. C. C. Meacham, Albuquerque; Dr. J. R. Van Atta, Albuquerque; Dr. J. W.

Tappan, Fort Stanton; Dr. M. G. Cartwright, Albuquerque; Dr. D. B. Williams, Santa Fe; Dr. O. E. Puckett, Carlsbad; Dr. J. G. Russell, Mora; Dr. C. W. Thompson, Pueblo; Dr. B. J. Weigel, Albuquerque; Dr. A. H. Vogt, Albuquerque; Dr. H. A. S. Golliky, Aetna; Dr. J. A. Reedy, Alling; Dr. C. H. Douthit, Claxton; Dr. J. C. Kisner, Clayton; Dr. D. C. Grover, Albuquerque; Dr. W. E. Gekler, Albuquerque; Dr. R. Bradley, Roswell; Dr. A. Horwitz, Roswell; Dr. H. A. Ingalls, Roswell; Dr. M. B. Culpepper, Carlsbad; Dr. C. E. Larkins, Albuquerque; Dr. George Piness, Los Angeles; Dr. J. F. Percy, Los Angeles; Dr. H. W. Snyder, Denver; Dr. M. P. Beam, Albuquerque; Dr. C. C. Davis, Albuquerque; Dr. E. W. Freskt, Santa Fe; Dr. J. W. Stofer, Gallup; Dr. J. M. Winchester, Clayton; Dr. George A. McAlmon, El Paso; Dr. S. L. Burton, Albuquerque; Dr. E. S. Fowler, Denver, Colo.; Dr. E. V. Brinkley, Temple, Texas; Dr. P. G. Cornish, Jr., Albuquerque; Dr. T. P. Martin, Taos; Dr. J. L. Gardiner, Albuquerque; Dr. W. C. Barton, Albuquerque; Dr. J. R. Scott, Albuquerque; Dr. Charles G. Duncan, Socorro; Dr. William W. Woolston, Albuquerque; Dr. C. A. Frank, Albuquerque; Dr. M. K. Wylder, Albuquerque; Dr. M. F. Smitt, Raton; Dr. H. T. Brosell, Portales; Dr. C. LeRoy Brock, Albuquerque; Dr. H. W. Gibbs, Las Vegas; Dr. F. H. Crail, Las Vegas; Dr. G. S. Luckett, Santa Fe; Dr. J. G. Cornish, Albuquerque; Dr. W. R. Lovelace, Albuquerque; Dr. L. J. Bernard, Albuquerque; Dr. H. J. Warner, Albuquerque; Dr. L. E. Clark, Albuquerque; Dr. C. O. Reed, Albuquerque; Dr. H. E. Rodna, Albuquerque; Dr. J. Estiwin, Espanola; Dr. E. F. Frisbie, Albuquerque; Dr. L. S. Peters, Albuquerque; Dr. G. A. Sheppard, Gallup; Dr. W. Smith, Los Angeles; Dr. Herbert Gallagher, Dr. V. E. Chesky, Halsted, Kas.; Dr. H. W. Brehmer, Albuquerque; Dr. J. J. Harris, Albuquerque; Dr. A. J. Markley, Denver; Dr. Sanford Withers, Denver; Dr. T. E. Sexton, Las Cruces; Dr. W. F. Witwer, Las Cruces; Dr. E. M. Fisher, Roswell.

Many members and visitors enjoyed the smoker which was given at the Country Club, Thursday evening. The boxing match was one of the best staged for a long time and the doctors reported it "anything but a dry affair."

The dinner dance given at the Alvarado Hotel, Friday night, was well attended and thoroughly enjoyed by all the participants.

Dr. Crum Epler's choice assortment of gall-bladders aroused considerable interest and discussion. The collection, which he intends to present to the museum of the American College of Surgeons, consists of mounted specimens of different types of gall-bladders, showing cholecystitis and cholelithiasis. Cards attached gave a description of each specimen, showing clearly the type of case, for example: "Specimen No. 3—Chronic cholecystitis with acute exacerbation; cholesterolin stone, acute suppuration of gall-bladder. Mucosa covered with purulent plaques and inflammatory exudate. Presence of large single cholesterolin stone in a cholecystitis."

Many of the old-timers remarked on the absence of Dr. C. M. Yater, who for years was secretary-treasurer of the Society, and who moved away from the State last year. It was a fitting tribute for the House of Delegates to pass a motion to send him a telegram of felicitation and esteem.

The slogan, "A better and bigger Southwestern meeting," of which the State meeting was only a forerunner, indicates that the Bernalillo County Medical Society expects to have a "whale of an affair" when the roll is called in November. The president of the Society, Dr. P. G. Cornish, Jr., in his address of welcome, remarked that this meet-

ing was more or less of a workout for the Southwestern meeting in the fall. The "work-out" resulted in one of the best State meetings ever held, so great things are expected in the sessions to be held in November.

Several of the visitors remarked that it looked as if the weatherman did not want it to be a dry affair anyway, as rain for two days in no way dampened the enthusiasm of the crowd, but seemed a remarkable change from the usual type of May weather in Albuquerque.

It was decided that Taos would not yet have shaken off its winter coat by May, the usual month for holding the annual sessions, so the meeting next year will be staged in June, in the hope of giving old Sol a chance to come smiling through and allowing a warm reception in the northern hills, when the medicos gather there.

AMERICAN COLLEGE OF SURGEONS

The American College of Surgeons will hold the eighteenth Clinical Congress in Boston, October 8-12. Headquarters will be at the Statler Hotel and meetings will be held in the ballroom of the Copley-Plaza Hotel and Symphony Hall. The Hospital Standardization Conference will be held in morning and afternoon sessions in the ballroom of the Copley-Plaza Hotel Monday, Tuesday, Wednesday and Thursday. An innovation this year will be the commencement of the clinics in the Boston hospitals on Monday afternoon, continuing through the mornings and afternoons of the following four days. Monday evening's program will include an address of welcome by the local Chairman, the address of the retiring President, Dr. George David Stewart, New York, the inaugural address of the new President, Dr. Franklin H. Martin, Chicago, and the John B. Murphy oration on surgery by Professor Vittorio Putti of Bologna, Italy. Tuesday, Wednesday and Thursday evening's sessions will be held in the ballroom of the Copley-Plaza Hotel. At the Wednesday evening meeting the visiting surgeons will be the guests of the Boston Surgical Society at a special meeting when the Bigelow medal is to be awarded. On Friday evening the Annual Convocation of the College will be held in Symphony Hall when the 1928 class of candidates for Fellowship in the College will be received. The fellowship address on this evening will be delivered by Dr. William J. Mayo. The annual meeting of the Governors and Fellows will be held Friday afternoon and will be followed by a symposium on Traumatic Surgery to be participated in by leaders in industry, labor, indemnity organizations and the medical profession. Ether Day will be celebrated in the Dome Room of the Massachusetts General Hospital on Friday when a bronze bust of William T. A. Morton will be presented to the hospital. It was in this building that ether was first administered for the production of surgical anaesthesia on October 16, 1846. Several newly completed medical motion pictures produced under the supervision of the American College of Surgeons and approved by it will be shown during the Congress. Reduced fares on the railways of the United States and Canada have been authorized to those holding a convention certificate so that the total fare for the round trip will be one and one-half the ordinary first class one-way fare. Other outstanding features will be the exhibits. In addition to the commercial exhibits the departments of the College will present scientific exhibits. A number of distinguished foreign guests of international reputation have signified their intention of attending. The Chairman of the Boston Committee on Arrangements is Dr. Frederic J. Cotton.

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THE SOUTHWESTERN ANNUAL MEETING

By the time this issue of the journal reaches its readers, the "Southwestern Meeting," by which is meant the annual gathering of the MEDICAL & SURGICAL ASSOCIATION OF THE SOUTHWEST, will be a scant two months away.

Albuquerque will entertain the Association this year and are making preparations for a banner program, one which will be on a par with the memorable meeting of last year in El Paso.

The dates selected by the Bernalillo County Medical Society are NOVEMBER FIRST, SECOND AND THIRD.

The type of program was left to the decision of the Program Committee of which Dr. J. R. Van Atta of Albuquerque is the acting chairman owing to the illness of Dr. Hugh Crouse, the president of the Association. After canvassing the desires of the members of the Association, it was decided to incorporate into this program the best features of all previous programs, in papers, clinical addresses and clinics. More detailed announcement will be made in our September issue, with completed program in the October issue of this journal.

THE INITIATIVE LAW ON MEDICAL PRACTICE

Unless Divine providence intervenes or the medical profession of Arizona awake to an intelligent and active interest in public affairs,—two eventualities of about equal improbability,—the initiative measure which

will abolish our present medical practice act will be passed by vote of the people in November.

The viciousness of this initiative act will not be appreciated by one voter in ten who votes for it, because they have been misled into thinking that it is an act to "allow a person to choose the doctor he wants." The intent of the act is not this at all, but is to ALLOW ANY QUACK TO CHOOSE THE VICTIM HE WANTS without danger of legal interference. The measure provides that no person desiring to practice any form of healing in Arizona shall be examined regarding his qualifications except by adherents of his own system of healing. By this, osteopaths can be examined only by osteopaths, chiropractors by chiropractors, naturopaths by naturopaths, naprapaths by naprapaths, Chinese herbalists by Chinese herbalists, quacks of any sort by similar quacks. A man who desires to practice any sort of skullduggery on the human being has only to coin a name for his system of healing and he will be immune, under this law, from molestation because there being no others of his ilk to examine him, he is free from interference, and can foist himself on the community, with the name "Doctor" attached to his name. There is no limit to the harm which such a law, if and when it is passed,—because it will pass,—can do to an unsuspecting and innocent people who have learned to put their trust blindly in the honesty and integrity of the term "doctor."

The medical profession of Arizona could prevent the passage of this law,—but they will never do it. We offer odds of ten to one that the initiative measure passes in November.

FEEES FOR ANESTHESIA

EDITOR OF SOUTHWESTERN MEDICINE:—

In order to settle some doubtful points about the fees allowable for administration of anesthetics under the Arizona Industrial Commission, I have gone over the entire matter with them and they have authorized me to make the following announcement to anesthetists in Arizona:—

Anesthetists will be allowed a fee of \$10.00 for one hour or less, and \$2.50 for each additional fifteen minutes beyond one hour, for the administration of ether or gas anesthesia. In other words:—

Minimum fee of \$10.00 for one hour or less.

\$12.50 for one hour and fifteen minutes;

\$15.00 for one hour and thirty minutes, etc.

The charges for gas furnished by the anesthetist or hospital will be at the rate of \$10.00 per hour, or \$2.50 for each fifteen minutes. In the past we have charged twenty-five cents per minute for gas, and this reduction is considered just in view of the certainty of cash payment for materials used.

Nitrous oxide and oxygen, or ethylene and oxygen, at the rate of \$10.00 per hour makes a gas anesthesia cost the Industrial Commission \$20.00 per hour, or twice the cost of ether anesthesia. The additional cost will be more than compensated for by the lessened expense on account of fewer hospital days, and pleasanter and shorter convalescent period for the patient. Ethylene gas does not irritate lung or kidney (is less toxic than ether), does not lower blood pressure as rapidly, nor is it so likely to produce acidosis, all of which shortens the hospital period.

HARRY R. CARSON.
Phoenix, Ariz.

NAVAJO-APACHE COUNTY (ARIZ.) MEDICAL SOCIETY

At a meeting of the Navajo-Apache County Medical Society held at the home of Dr. J. W. Bazell, Winslow, Arizona, in July, Dr. C. L. Hathaway was elected President and Dr. J. W. Bazell Secretary and Treasurer. Dr. H. K. Wilson of Holbrook, Arizona was elected delegate to the state medical meeting, and Dr. Don G. Lynwaller of Keams Canyon alternated.

Several important matters were discussed and resolutions expressing confidence and satisfaction with the Arizona Industrial Commission and objections to any effort to repeal the Compensation Act were unanimously passed. Notice of these resolutions were sent to Governor Hunt, State Industrial Commission and to the Secretary of the State Medical Association. It was decided to hold regular quarterly meetings, the next one to be held in October at Holbrook.

Also resolution expressing sorrow over the death of Dr. Geo. P. Sampson was passed and notice of this resolution was published in the Winslow Mail and in Southwestern Medicine. It is also to be written in the minutes and copy sent to Mrs. Sampson.

The following doctors were present:

J. W. Hendrick, M. D., Holbrook, Arizona.

H. K. Wilson, M. D., Holbrook, Arizona.

Don G. Lynwaller, M. D., Keams Canyon, Arizona.

O. S. Brown, M. D., Winslow, Arizona.

C. L. Hathaway, M. D., Winslow, Arizona.

J. W. Bazell, M. D., Winslow, Arizona.

Refreshments were served by Mrs. J. W. Bazell, which were enjoyed by all.

EL PASO COUNTY MEDICAL SOCIETY

May 21, 1928.

DR. JOHN HARDY reported a case of ruptured uterus following cesarean operation.

In September, 1926, woman, age 23, with a symmetrically contracted pelvis, came to term. It was thought possible that she might deliver herself and consultant agreed. She was given extensive trial, labor lasting from Sunday morning until Wednesday, then cesarean operation was done, and a ten and one-half pound child was delivered. She enjoyed an uninterrupted convalescence but became pregnant again before she menstruated and, consequently, did not know exactly the time for next delivery. The doctor was called about noon, one day in January, 1928, by the mother-in-law, who stated that the patient was having indigestion. We could only estimate the proper time for her delivery and the mother was instructed to send her to the hospital. I got there a few minutes after the patient's arrival and found her fairly comfortable. She said that she had a few slight pains. I proposed to send her to the operating room but the family wished her husband to be present and it took two hours to get him. When he arrived, we took her to the operating room where I opened the abdomen. The uterus had ruptured from the fundus to the cervix, making a very easy cesarean; all I had to do was to lift the child out. The woman made an excellent recovery, although a little stormy.

The reason for reporting this case is having a living child and mother after such an extensive rupture.

CASE REPORT: DR. E. W. RHEINHHEIMER

Male, age 43, first seen May 11, 1928. Family history, practically negative. Past history: measles at 8, mumps at 12. Fifteen years ago the patient had, for a period of four or five days, a severe headache—so severe that it bothered him to have people walk across the floor in the same room. At that time he was given ordinary remedies without any relief and finally, was given a hypo of morphine and in three or four hours this was repeated. He then went to sleep and when he woke, the headache was gone. Since that time he has had periodic attacks of sick headache or migraine, but aspirin or something like that would relieve it. About two years ago he had what was thought to be an attack of appendicitis, but it apparently was not and he continued having some intestinal disturbance for five or six months. Had gastro-intestinal x-ray examination at that time which showed nothing more than complete ptosis. He was put on rest and improved and has not had much trouble of that kind for some time. Venereal history denied; never any acute infections; appetite good, not a user of alcohol; drinking it made him violently ill and he had completely stopped using it.

When I saw the patient ten days ago, he had rather suddenly a headache confined to the left supra-orbital region and left occipital region in the back of the neck. He had this for 24 hours; it would clear up somewhat after he took an aspirin tablet and then would continue to recur, especially after he had been out a little. I saw him on the 11th of May, and two days before that he became extremely nauseated, suffered violent pain, with no let-up in pain for 48 hours. While in my office he was extremely nauseated and I sent him home, giving him a prescription with phenacetin, codeine, etc. but it gave no relief. He had a rather troubled night, did not sleep much and had wild dreams of a frightful nature. The next morning, I took him to the hospital. He was taken in an auto and after the exercise of walking to the machine, riding to the hospital, walking into

the building and up to the room, his pulse was 45 and he still complained of violent headache confined to the left side of the head and back of neck. Spinal puncture was done, with no manometer available, but fluid came out distinctly under pressure. Spinal fluid spurted out perfectly clear, and after 10 to 12 c.c. came out it started to drip and soon stopped. Examination of fluid showed cell count of 3, trace of globulin, sugar negative, Wassermann negative. I thought this would relieve him but it did not, the headache was still severe. We were giving codeine by hypo, which relieved him for a little while. Examination showed nothing to indicate involvement of cranial nerves. Reflexes were normal with the exception of the abdominal, which were not elicited, no rigidity, no evidence of any muscular paralysis of any kind. Dr. E. A. Duncan went over him also and could find nothing. All he could say was that it looked like brain tumor, but there were no local symptoms. Dr. W. E. Vandevere examined his eye-grounds and reported slight haziness of vessels, that the picture suggested intracranial pressure. White blood count, 11,000; polys, 67 per cent; small lymphocytes, 32 per cent; slightly suggestive of syphilitic lesion. However, this was denied, and Wassermann was negative. Urine examination: specific gravity 1024; amber, acid; faint trace albumin, sugar negative, occasional pus cell few squamous epithelial cells, bile pigments negative, acetone and diacetic acid negative.

We gave codeine by hypo to control the pain, and on the morning of the 14th, he felt hungry, ate breakfast and the nausea stopped. The headaches continued, but gradually decreased in severity. The skin of the scalp was extremely sensitive for a day or so; the pain gradually left the left side and involved the right frontal region. However, there was still some pain around the left. He continued to have wild night dreams and dreaded the night. X-ray examination of the skull by Dr. Mason showed no evidence of sinus involvement nor anything at all.

I do not know what the diagnosis was, but the condition of severe headache and sometimes projectile vomiting, with a pulse rate of from 45 to 50, with spinal fluid that was definitely under increased pressure when it escaped, and no temperature except one day, when it went to 99.4 and in an hour dropped to normal, was certainly suggestive of brain tumor, or something that increased the intracranial pressure, but there was nothing that would definitely indicate it. He continued to improve and went to work today for a while. He has not had codeine for about six days now, but has had to take aspirin occasionally and it has relieved the pain. The condition of the optic disks, while not indicative of choked disk, was, in Dr. Vandevere's opinion strongly suspicious of intracranial pressure. Since he has continued to improve, I have told him to go to Dr. Vandevere and have his eyes tested for vision and let him go over his sinuses again. The only thing I could call this was phantom brain tumor.

DR. W. E. VANDEVERE: The patient came to my office this afternoon. The eye-grounds have cleared up with no evidence of haziness about the margin of the optic disk; vessels normal in size and shape; he has a refractive error; the glasses he is wearing need a slight change, but outside of that I do not think there is anything that would account for much of his headache. The sinuses are perfectly clear, and no discharge to be found anywhere in the nose or pharynx.

Q. When did the present illness begin?

A. About the 2nd of this month (May), gradually increasing in severity.

Q. What is the pulse rate now?

A. Running about 65. It did not go up after the spinal puncture, but was up the next day around 52-54.

Q. What is his blood pressure?

A. His blood pressure was 110/74.

Q. What drugs did he have other than codeine?

A. Nothing at all except a little aspirin; 5 gr. would control the headache and allow him to get sleep.

Q. Has he ever had tuberculosis?

A. No, there was nothing in the lungs under x-ray nor anything.

DR. S. D. SWOPE: It seems to me that this man may have had a very severe attack of migraine, which has lasted over a period longer than ordinary. If you want to make a migraine case a great deal worse, if you want to increase the pain and the symptoms, all you have to do is to give one of those patients a small shot of adrenalin. I have tried it and know how it feels. I was subject to migraine for many years. At times it was so severe that I could not see. I believe that migraine is almost entirely due to some circulatory disturbance about the brain and that the disturbance involves other parts of the body as well, and especially the sympathetic system. Recently I have had a case that is almost the counterpart of the one that Dr. Rheinheimer reported, except that it was not quite so severe. This lady has had migraine since she was 20 years old; she is now 48. She had not menstruated for two years. The migraine had been of a circulatory character and came on every ten days or two weeks. Some two months before, headache had become practically continuous and she had no relief; had lost in weight, was not able to sleep except for short periods. Went to sleep with headache, when exhausted, and woke up with headache. It was hard to control but after awhile we were able to control it. In that particular case and in a great many other cases, I find that luminal controls headache better than any other drug. The idea of migraine being so closely akin to epilepsv suggests the use of luminal in those cases and it acts well indeed. Just now I have another case which is improving with luminal. That brings me to the conclusion that these attacks are due to a circulatory disturbance which is controlled with luminal better than any other drug. This woman had a mental disturbance developing in a peculiar way. A great many years ago another woman began writing her letters denouncing her for not having performed an act that she was supposed to perform—buy a certain piece of property. These letters came at regular intervals and when they came they disturbed her a great deal and she was constantly in one of those disturbed states as to whether she should or should not buy. This may have had something to do with the migraine she was having. After the matter was thoroughly threshed out, the migraine subsided. She came here from one of the adjoining towns, but now that she has recovered, she has gone back home again. She still has slight attacks that are controlled easily by luminal. In this case spinal puncture was made and gone over very fully. It was decided she had some pressure and the question of brain tumor was considered, as she had some of the classical symptoms.

CAPTAIN PRATT: I did not hear all the history of the case, but from what I did hear, it suggested the possibility that it was purely a case of migraine. We had a Veterans' Bureau beneficiary referred to us about six weeks ago, with a history of having had periodic headaches over a period of ten years. As it had advanced, these attacks became more severe. Migraine is not necessarily a hemicrania,

but may involve the frontal lobes—which were involved in this case. The sinuses were negative. The patient was sent in with request for observation for spinal syphilis and request that lumbar puncture be made. The spinal fluid pressure was increased, but analysis of the fluid was negative. The eye-grounds were examined and there was evidence of papilledema, which suggested an increase in intracranial pressure. Following these attacks, the possibility of migraine.

MAJOR SCOTT: I have recently had a very interesting case. An officer at the Post, age nearly 50, with history of intense pain over left eye from about the age of 15, coming on without any apparent cause, frequently after exercise and associated with what he called mechanical vomiting. The description fitted very well with projectile vomiting—no especial nausea, but it came up with great force and he was not sick afterwards. He suffered with this pain over left eye and left side of face at intervals. It would usually last about a day and then pass off very quickly. As far as I know he did not have to take narcotics for it. He was examined by every type of doctor or healer that we have in this country, including chiropractors. He had all kinds of x-ray and other types of examinations, all of which were negative except one. A retired army officer doing nose and throat work, suggested that he might have sinus trouble, but he could not find it. Just two years ago someone found what he thought was left maxillary sinusitis, so he had his teeth pulled, the sinuses were drained and there was found very definite infection of an old sinus. A further search was made and it was found that the right maxillary sinus was involved also. Since that time he has had no more pain and no more trouble.

DR. RHEINHEIMER: I want to amend my report a little. I did give the patient luminal and it did no good. After his headache was subsiding somewhat, I gave it to him again and apparently it had no effect at all. In migraine there is usually a family history of migraine or neurasthenia of some kind. I went carefully into the family history and it showed nothing of that sort. The death of the father, at 78, from paralysis, was the only thing so far as the family was concerned that would indicate migraine. Could typical migraine produce a slow pulse?

DR. SWOPE: Certainly; migraine always slowed my pulse. It had always been about 72 and when I had attacks it would come down to 60.

DR. RHEINHEIMER: About a year ago I had a woman who had attacks of headache following hysterectomy some years before. The doctor who was taking care of her said that, if she did not get relief, some day she would die from these attacks. She had headaches from two to three weeks apart and I kept her on luminal. For three months she was taking it every day and the headaches were not so severe, but she finally went back to Louisiana, had one of these severe attacks, and, just as the doctor had said, she became unconscious and died. Physical examination showed nothing at all.

DR. W. W. WAITE: In all probability she had a rupture of the blood vessels in one of the ventricles—a complication that killed her.

CASE REPORT—DR. W. E. VANDEVERE

Woman, 36 years old, first seen three months ago on account of abscess of right middle ear, for which tympanotomy was done and ear drained freely. The fluid assumed rather a bloody character and it was decided that this was due to the formation of a polypus from the perforation of the ear drum. There was a large polypus which had

developed. I removed that and finally persuaded her to have an x-ray picture made, which showed typical mastoid infection, with all the cells broken down. She had tuberculosis and was afraid to take an anesthetic, so the operation was done under local and she got along very nicely.

There is no special reason why adults should not have mastoid operations done under local anesthetic. Radical mastoids are a little more difficult, but in the simple mastoids there is no reason why they should not be done under local.

DR. WILLIAM J. DAVIS: In regard to anesthesia, I think in a case of that kind there is no question but that local is ideal. Some use gas, but for the average mastoid operation I prefer general anesthetic, because, if you have a nervous individual, you do not get the co-operation you can have when they are asleep, so, unless contraindicated, I prefer some type of general anesthetic in these cases.

CASE REPORTS—DR. E. J. CUMMINGS

1. Little girl, about six years of age. About March 1st had flu and measles. Latter part of March she developed typical right side lobar pneumonia, which ran its usual course with the crisis about April 1st. On April 3rd, the mother said the child was running a temperature. When I saw her, the entire right side of the chest was filled with fluid and diagnosis of fluid in chest was made. To confirm the diagnosis, we had an x-ray picture taken, which showed right side of chest full of fluid from apex to base. The child was taken to the hospital, and under local anesthesia, a tube was placed in the pleural cavity and a large quantity of seropurulent fluid was with drawn. On entry into the hospital, the child's temperature was about 102; at the exact hour of entrance to the hospital it was 101. In the afternoon, after draining the pleural cavity, temperature shot up to 104.2 and later in the evening came down to 100.6. Respiration was greatly improved and she felt much better. Pulse was 120 and she was breathing between 20 and 30 times a minute. Ran temperature between 99 and 101 the rest of the week. Two days later, her temperature went up to 102.6, at which time we took another x-ray picture. At this time practically no fluid could be aspirated or washed out of the pleural cavity and findings over the chest were not those of fluid in the chest. You will see by the picture that there is a partial pneumothorax. At this time Dr. Mason asked me if the child had anything the matter with her heart, as the heart shadow certainly appears as if it is enlarged to the right. In any event the child continued to run temperature, varying from 99 in the mornings to 102, gradually going up to 103 and 104, and continued to do so for the next two weeks. A week after the first picture was taken, another x-ray film was made, at which time the shadow that looked as if the right heart might be enlarged showed a clear space between it and the cardiac shadow. The day this picture was taken the child left the hospital; the next day her temperature was 101. the following day 100, and the succeeding day it came down to normal and she has not had any since. This was on May 9th; the tube had been removed about a week before. Three days after her temperature fell, her side broke open and a lot of pus drained out. The mother estimated that half a cupful of thick pus escaped, and she is still draining some pus out of that side but has had no temperature since May 9th. X-ray picture taken today still shows involvement in that area, but it is fading out. The question is, what is the diagnosis? Our diagnosis was pneumonia, complicated by empyema and lung abscess. Our explanation is that the day her temperature returned to normal, the abscess had probably broken into the

pleural cavity and the pus drained out to the opening where the tube had been. However, x-ray picture fails to show definite cavity wall and whether it was an abscess the patient had walled off, or empyema which had not been drained, I guess we will never know.

2. Five-year-old child struck by automobile and knocked unconscious; had compound, comminuted, depressed fracture of vault of skull. Was taken to the hospital and depressed fractured bone was raised and several small pieces of the bone, separated from the periosteum were removed, leaving a hole in the skull about one inch in diameter. The dura was not cut, no linear fracture discernable running away from the depressed fracture. There was hemorrhage from the nose but none from ears. The dura was not opened, the bone was merely elevated and scalp wound sutured. The patient remained unconscious for a period of about six days. On the morning after the accident, I told his people I thought the child was going to recover, based on the following symptoms: temperature was a little above normal; pupils equal and reacted to light; very slight paralysis of left side of face; reflexes otherwise perfectly normal. The child continued in about the same way until the morning of the sixth day when he awoke and asked for a ham sandwich. The next two days he became practically normal, temperature disappeared, pulse good quality, not slow, and in the absence of much fever, we did not consider that the child had a lacerated brain, and with pulse normal, did not think he had any hemorrhages, so, about the end of the week, he went home almost normal. We had difficulty in keeping him quiet, as he would insist upon standing up in bed, looking at picture-books and playing with toys. On the twelfth day following the accident, he started running temperature, that day going up to 101, and it seemed to me that his neck was slightly rigid and had a slight Kernig on the left side. The next day his temperature went up to 102 and the neck seemed more rigid. At this time he commenced to complain of considerable headache and was rather restless, tossing about fretfully. On the third day, his temperature went up to 103.4, and at this time there was no question about his neck being rigid, but there were no papillary changes, no increase of any paralysis. At this time it was thought, unquestionably, that he was developing meningitis. In the hope that it might be a local affair at the site of injury, he was taken back to the hospital and a lumbar puncture was made. The fluid escaped under increased pressure, was cloudy. Smears and culture from fluid were negative, and, in hope that it was a localized process, the scalp wound was opened up, but was found to be clean with no signs of infection. The dura was opened and brain immediately popped out through the opening, which was an inch in diameter; was bluish discolored from the bone having been pressed down upon it and appeared to be very edematous. With forceps the opening was enlarged downward and we were in hopes of encountering some pus, but nothing was found. The brain merely looked edematous and I thought there was a little grayish film on it, but guess I was mistaken. Smears and cultures from brain were negative. Pulse at the time of operation was 146, temperature 106. The next day temperature dropped to 101, pulse came down during the day to 90, but then went back up to 120. His temperature rose on the following day to 103, where it has remained most of the time since. Pulse has gradually come back to 100 from 132. Spinal fluids have appeared about the same; direct smears and cultures negative. At times during the last few days, the child has been

mighty sick. On the 15th we operated him and on the next day the temperature came down so much it was very gratifying, but we felt it was probably a temporary affair. On the 17th, examination did not reveal any change except that tissues over the bridge of the nose are more swollen. He began to have a little swelling between the eyes; general condition about the same. He calls for his mother even when she is present, but answers questions intelligently. Today, May 21st, there are no new symptoms. The swelling of the soft tissue has begun to subside. For several days following the child's second entrance into the hospital it did not look as if he would live very long, pulse would become very weak. Yet, on the whole, he is now better than he has been any time since his entrance to the hospital a week ago. Tonight his temperature is 103, pulse 132, breathing about 30 times a minute. X-ray of skull showed linear fractures running through the frontal fossa and probably on both sides of the head and probably one through temporal portion of bone on the right side. Our diagnosis after the first lumbar puncture was meningitis.

My conception of the case has changed since opening the child's dura. I believe that he has one of two things—either a brain abscess or an epidural or extra-dural infection. The text-books describe such conditions under meningitis syphatica and state this condition is quite frequent with brain abscess, sinus thrombosis, or extra-dural infection. In other words, there is enough infection somewhere, either outside the dura or inside the brain to cause this fever and symptoms of meningitis.

DR. F. P. MILLER: In the first case, I think the child had lobar pneumonia, with perhaps multiple abscesses within the pleura and one of them ruptured, giving the empyema. I think the treatment you are doing is proper in every respect. I think a great many of our empyemas are due simply to abscesses which are perhaps underneath the pleura. You usually get a cure by drainage, but the lung abscess that has resulted will be a much more chronic affair and just what course it will take, you cannot tell at this time. There was not much cough, as I understand it, if any, and she is bringing up no secretions at this time. Perhaps draining through a secondary opening in the chest wall was sufficient to reduce it. I might report a very peculiar interlobular empyema in which Vincent's organism alone was found.

As to the other case, I am not so positive about it. It would seem that when a child sustained such an injury, being struck by an automobile, that there must have been considerable damage done to the brain tissue underneath. Aspiration at that time might have relieved some fluid. Not opening the dura at that time was good, but aspiration with a needle might have removed some fluid. Perhaps you have an infection extra-dural and that might account for the condition.

DR. EGBERT described his trip to Galveston in attendance at the Texas State Medical Meeting.

DR. E. RHEINHEIMER announced that the Ladies' Auxiliary Society proposed giving, in conjunction with the County Society, a testimonial dinner to Dr. Felix P. Miller, president of the Texas State Medical Association, and wanted this to take place next week in place of the regular weekly meeting.

DR. C. M. HENDRICKS made motion that the meeting next Monday night (May 28th) be devoted to a dinner to be given to Dr. Felix P. Miller, in conjunction with the Ladies' Auxiliary, the ladies to be in full charge of the affair. This was duly seconded and carried, and Dr. Rheinheimer in charge of the program, so advised.

DR. HAL GAMBRELL reported a case of gastric resection in a suspected malignant ulceration of the stomach. The patient, a Mexican washerwoman, 35 years of age, gave a history of gastric pain of over five years duration. The severity of the pain not infrequently caused her to double up and stop work for a time. Gradually she had lost weight, a mild jaundice developed, and an inability to eat had forced her to seek medical relief. X-ray studies had shown the pylorus to be the seat of a large ulceration with a nine-hour retention of most of the bariun meal. Occult blood in the stools was nearly always present. She refused gastric analysis. Serological studies were negative to syphilis. Surgery seemed to offer her the best possible prognosis.

After careful preparation, cautery resection of the most of the lower third of the stomach was made in bloc with the adhering omentum. Sufficient of the pylorus was available for anastomosis with the duodenum. Convalescence has been uneventful and the patient has returned to work and is eating coarse foods such as the Mexican peon uses. Examination after three months showed a normal emptying time and excellent motility. No filling defects were present at this examination.

Dr. Prentiss opened the discussion after Dr. Turner had discussed the x-ray angles and the pathology. Dr. Prentiss warned against accepting occult blood as an important fact unless bleeding from infected gums and upper respiratory passages had been excluded.

DR. WM. BRANCH exhibited two cases of poliomyelitis in the same family. The disease in the older child had occurred some eight years ago with resulting contractures of the foot and lower leg. The case had been untreated. The second case, an infant of 18 months, had a double flaccid paralysis of the lower extremities following a brief illness about the first of the year. While sick but a short time, the mother states that the infant quit walking at once and had never tried since. In addition to the flaccid paralysis the baby was anemic and markedly rachitic.

DR. F. P. SCHUSTER presented the paper of the evening. The title of the paper was "Management of Squint in School Children."

DR. VANDEVERE opened the discussion. He said that he regarded early institution of treatment of prime importance in all cases of squint. He reported one case of an eighteen-months-old child who is wearing glasses with considerable benefit. The tucking operation he believes to be safer. Atropine is a most valuable drug and should be continued for a long time.

Dr. S. A. Schuster, in stressing some of the points in the paper, emphasized the value of waiting until the child was fairly well along in childhood before operating so as to do the work under local anesthesia and thereby secure better cosmetic results. The psychological effect of a squint is apt to be harmful to a child.

Dr. Swope warned against the continued existence of a squint in sensitive children as the source of an inferiority complex that may affect a child ever afterwards.

Dr. F. P. Miller cited the effect of a corrective operation in his family as an example of the excellent results obtainable and also the improved mental attitude.

Dr. F. P. Schuster, in closing, said that he resorted to complete atropinization and full corrections early. If too young to secure cooperation in the child, the retinoscope was used to establish an accurate measure of refraction.

DR. HARRY LELGH reported the case of a child who upon recovering from measles con-

tracted scarlatina with subsequent suppurative otitis media and cervical adenitis. The antitoxin promptly administered brought the temperature down but the ears continued to drain for several weeks. The mother, who cared for the child, was cautioned in regard to the care of the pus. A slight scalp wound in the mother's head was repeatedly scratched with a comb used on the pus-contaminated hair of the baby. Wound erysipelas promptly developed which yielded to erysipelas antitoxin. Was the pus from the baby the source?

DR. GEO. GILLEN reported the case of diphtheria in his child four weeks after a case of scarlet fever in an older youngster. Isolation had been complete. The child began with a sore throat, adenitis and high temperature. Several cultures were made before securing a positive diphtheria report. Clinically the early course of the disease looked like scarlatina without a rash. Some 40,000 units of diphtheria antitoxin were given.

ST. JOSEPH'S HOSPITAL

(Phoenix)

Staff Meeting of April 9, 1928.

The regular monthly meeting of St. Joseph's Hospital Staff was held in the lecture room on Monday evening, April 9, at eight o'clock. A good attendance was registered.

The monthly summary for February and March was read and discussed.

DR. S. W. BLOOMHARDT was the program chairman and had arranged a very interesting series of cases, as follows:

CASE 11090. DR. C. N. PLOUSSARD.

Girl, 12 years of age. Within ten minutes after arriving at the Grand Canyon, she stepped on a rock which gave way, causing her to fall approximately 267 feet, falling and rolling, landing on a ledge. Patient does not remember about falling. The accident occurred on April 2, and she was brought to the hospital on the fourth. An old stove pipe had been used for temporary splint. The limb was very much swollen and no attempt has yet been made to reduce the fracture, waiting until the swelling has become less.

Roentgenologist reports, "radiographs of this thigh, taken with portable coil, show comminuted fracture of the femur about the middle of the bone, with several loose fragments. There is one large, loose fragment lying close to the anterior surface of the thigh. The main fragments are not in alignment, there being both lateral and antero-posterior overlapping."

In a few days, after swelling has disappeared, patient will be taken to the x-ray room and fracture reduced by manipulation under the fluoroscope. The small fragment of bone lying close to the skin can easily be removed under local anesthesia and leg put up in some sort of extension apparatus until enough new bone formation is produced to allow patient to be up on crutches with cast to limb.

(Patient was then exhibited on a cart, with leg in Thomas splint, which had been placed when she was admitted to the hospital. Swelling had almost disappeared and patient was comfortable. There were numerous skin abrasions on leg where fracture was compounded, and numerous contusions and skin lacerations over entire body.)

DR. J. M. GREER: After seeing the patient, I doubt if the method usually adopted with children will hold, as this patient is larger than I expected to see, and the question would be between treatment of child and adult, rather leaning toward that of adult. It would seem that perhaps a modified overhead extension, such as the Russell meth-

od might give the best results. The Russell method, as you know, is a system of pulleys with overhead suspension and multiplied pull through a stationary pulley to the foot of the bed, a movable pulley to the end of a Buck's extension and back to another stationary pulley at the foot of the bed which supports the weight. This case is very interesting and the treatment of such cases is very important. One must not forget the injury to soft parts as well as bone injury in all such cases. The desire now in such fractures is to reduce them as soon as possible, not waiting too long for the reduction of swelling, not even waiting too long if x-ray is not at hand. Sometimes it is impossible to reduce fractures at the beginning for one reason or another, even if one has them well under control and under the fluoroscope. In such cases such apparatus should be selected as will have a tendency to reduce the fracture gradually. The length of time following injury to the time of reduction of fractures markedly increases the difficulty of reduction. A method I saw used recently that might have some merit in a case that is difficult to reduce, is that of putting on a long circular plaster cast and making an incision at site of fracture and using the two ends of the cast as levers to aid in the reduction. This sometimes helps in fractures near a joint where the fragment is so short that it is difficult to use it as a lever. Coming back to the treatment of this case, question has been asked, why not treat fracture in adult the same as fractures in children, by the overhead extension method? Whether or not this has ever been used I do not know. It would probably not have any advantage over other methods. We have used the Russell method several times with satisfactory results, the advantage being that it is comfortable for the patient and fractures that are difficult or impossible to reduce at the beginning have a tendency to be reduced by the continuous tension of this method. There are many methods used in treatment of fractured femurs. There has been some effort at standardization but most surgeons have their pet method and the method that the surgeon is most familiar with is the one he should use. Operation or open method is not used now as extensively as it was formerly, and among the best surgeons as a general rule, the operation method is only used after a real earnest attempt of reduction by the closed method. In operation there is now a tendency to use bone screws and bone plates rather than metal plates. It would seem that this is a step in the right direction, although many good results have been obtained by the metal plate in fracture of femurs. The Thomas splint was used universally during the war, probably largely because of its simplicity and even with all sorts of apparatus at hand, the Thomas splint is very hard to beat in many fractures, and for emergency and first aid treatment it has no substitute. I hope the doctor gets an excellent result in this case and with his usual attention to details I am sure that he will.

CASE NO. 11015—DR. R. B. RANEY

Man, age 76, entered the hospital March 25, complaining of pain in the lower abdomen on the left side. Onset of illness began March 24, at five o'clock while working at his usual occupation of agriculture. He was suddenly stricken with an acute attack of pain on the right side of the abdomen, radiating upward into the chest. He continued at work for about half an hour but the pain continuing, a local physician was called, who gave him relief by the administration of morphine. After the effects of morphine wore off the pain returned but was this time situated in the left lower quadrant. This continued, severe in charac-

ter, and patient entering the hospital next day, March 25. Soon after entering the hospital he had another paroxysm of pain in the upper right quadrant similar to the onset of illness. This passed off in forty-five minutes without the aid of morphine. During this attack of pain the right rectus muscle was markedly spastic producing an evident asymmetry of the abdomen, associated with marked tenderness over the gall bladder area, the tenderness and rigidity passing away with the pain. From the onset of illness there was a history of obstipation which could not be relieved by cathartics and enemas. These were not administered until a definite condition of intestinal obstruction was evident. Throughout the entire illness when patient was turned on side the pain in the epigastrium returned, to be relieved by turning on the back. During no time in the illness was there nausea or vomiting. No history of nausea, abdominal pain or distress previous to the onset of illness was given. The pain was not affected by food; however, he ate very little after the onset. Pulse was normal and temperature slightly subnormal, throughout attack.

Past History: Last illness was 70 years ago. At that time he had what he thinks was pneumonia. He had the usual childhood diseases, otherwise he has experienced the best of health.

Physical Examination: Pupils round and equal, react to light and accommodation. Ears, nose and throat negative. Neck: no palpable masses or abnormal pulsations. Pulmonary: no rales, fluid or consolidation, respiration 20. Cardiovascular: no murmurs, irregularities or hypertrophy; low grade arteriosclerosis. Pulse rate 80 and full. Abdomen: Equally distended, moderately rigid and tender throughout. Genito-urinary: negative. No rectal masses palpable. Neurological examination disclosed nothing abnormal. White count 12,000; polynuclears, 91, mononuclears 9. Urine: slight trace of albumin, otherwise negative.

Diagnosis: Acute intestinal obstruction at the sigmoidal junction.

Findings at operation: Volvulus of the descending colon at the sigmoidal junction and perforated gastric ulcer at the lesser curvature of the pyloric end of the stomach. Corrections were made with closure.

Progress: Patient suffered slight shock from the operation. In good condition the next day. Pulse 90, temperature 100. Low grade peritonitis followed with marked diarrhea for ten days. Moderate drainage and marked melting of the wound. Pulse never exceeded 90 or temperature 101. At three weeks diarrhea stopped, discharge ceased and wound healing. Temperature and pulse normal and free from symptoms.

DR. L. DYSART: During operation, Dr. Bannister maintained that the serious trouble was in the upper abdomen and had desired the incision be made in upper abdomen and he was right, because the operation disclosed the perforated ulcer. After the intestines were all out, the distention was so great that the intestines could not possibly be returned to the abdomen. There seemed to be complete paralysis of the intestines and they were full, not only with gas, but great deal of liquid. Dr. Bannister and I advised drawing off the gas and liquid before any attempt was made to get intestines back into abdomen, and this was done by passing a colon tube into rectum and use of a trochar into caput coli when, by the aid of an aspiration outfit, intestines were emptied. One quart was obtained and nobody knows how much gas; I believe without emptying the intestines, the patient would have died. If I am ever called up to do anything of this kind again with liquid in intestines, will see that a ligature is tied

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around intestine and trochar so there will be no soiling of abdomen. There was some soiling in this case.

DR. K. BANNISTER: Dr. Jordan saw this man first and I do not know what he made out, with no outstanding symptoms, as the man had kept at work after pain had subsided. Dr. Jordan gave him morphine and with notion he had a surgical abdomen sent him into the hospital. The day following I saw him in consultation. At that time his abdomen was slightly distended, not very tender with no marked rigidity. Pulse around 80, temperature 98 and below. I told him he had a surgical abdomen with trouble in upper abdomen. He had been given two or three enemas and each time had recurrence of pain. We believed his distension was due to amount of water in intestines rather than any peritonitis. There was slight passage of flatus with enemas. There was nothing definite to be found to tell what the matter was. The pain was in the upper abdomen more than in lower. First blood count was 9,000, second was 12,000. Patient said he was going to be all right but would be operated on if it was necessary. There was a ruptured gastric ulcer one inch above pylorus.

DR. RANEY: It would have been interesting to have seen this man when he had his first attack of pain. Though he gave no history of shock nor the usual signs of perforated gastric ulcer, they were in all probability present, which would have made the diagnosis evident from the start, and the symptoms as given in history and physical examination would have seemed a logical sequence explaining a volvulus formation from an increased peristaltic activity of the entire gastro-intestinal canal from irritation following the perforation of the gastric ulcer.

CASE NO. 10498—DR. KIMBALL BANNISTER

Female, 56 years of age, obese, foreign born, wintering in Chandler.

Complaint: Pain, headache, and neuralgic pain about head, joints, muscles and back, loss of strength and lassitude. Onset eight days ago, with severe attack of nausea and vomiting, followed by transitory convulsive state and loss of consciousness. Recurrence of this four days later. Cramps in bowels with nausea and continuous vomiting most of time since.

Physical examination: Diplopia marked. Ptosis marked. Extreme lassitude and tired feeling. Somnolence, very slow speech with effort. Slight rigidity of neck with tenderness of back muscles. Double Babinski abdominal reflexes absent. Spinal fluid, slight pressure, 6 cells per c.c. Course stormy with vomiting and severe symptoms for days. Gradual subsidence at end of week. General lapse into extreme somnolence but heard what was going on about her and answered questions. Diplopia persisted for some time and even at present returns in right eye occasionally. Headache lasted for several weeks with exacerbations. Treatment symptomatic; urotropin gr. V per mouth t.i.d. ordered by Dr. Church.

Present condition: Up for several hours daily, gradually gaining strength. Some mental changes, hard to classify because of her foreign ideas and conception. No Parkinsonian syndrome or myoclonia to date.

(Dr. Bannister then read a paper on Epidemic Encephalitis, which will later be published in this journal.)

DR. A. C. KINGSLEY: There is very little to add to what Dr. Bannister has already said in regard to epidemic encephalitis. If one will remember that the mid-brain and tegmentum of the pons and medulla are the regions usually involved and the symptoms which accompany such lesions, you

will have very little difficulty in arriving at a diagnosis. With the exception of syphilis and multiple sclerosis it is the most widely disseminated. Neither of these are febrile diseases, and from the history can be eliminated. Tuberculous meningitis must be considered in a patient suffering from tuberculosis. A given case presents symptoms of several of the different groups. Briefly, the diagnosis can be summed up. A mild febrile attack, followed by an acute illness of the nervous system with drowsiness or insomnia, meningeal signs, increase of lymphocytes of spinal fluid (10 to 50), pupillary changes, ocular palsies, radicular pains, and abnormal movements with some rigidity, justifies the diagnosis of epidemic encephalitis. The sequelae are numerous. However, the Parkinsonian syndrome is the most common. In the early epidemic, the lethargic symptoms were more in evidence, double vision, loss of reaction to light and accommodation, cranial palsies, active abdominal reflexes, bulbar signs and Babinskis. In the later epidemics, mental symptoms, myoclonic movements, absent abdominal reflexes are observed. In this case we have Babinski, marked lethargy, and absent abdominal reflexes, presenting symptoms of both forms. Hiccoughs is often a prodromal symptom. I have personally observed two cases in which persistent hiccough was the first symptom. One of these cases went on to rapid and fatal termination in three days.

DR. J. J. McLOONE: Examination of eyes requested by Dr. Craig disclosed the following:

Ptosis of right eyelid. Anisocoria present. Right pupil shows a moderate mydriasis and reacts sluggishly to light. Left pupil shows a myopsis and reacts normally to light. There is a paralysis of right internal rectus and a diplopia which was evidenced by an external strabismus. There is impairment of muscular motility of all eye muscles of right eye, except the external rectus and superior oblique. (Involvement of third nerve). The muscular motility of left eye is not affected. Right and left discs show a slightly greenish hue. There is no papilledema. The blood vessels of nerve heads and retina are normal in appearance. Nose: Shows a high deviation of septum. Mouth: and throat are negative. Teeth show some pyorrhea.

Among three of the five cases of encephalitis which I examined during the past three or four years, there was disclosed a greenish hue to the right disc or part thereof. Sometimes this condition was noted on the temporal side and sometimes on the nasal side of the disc. In one of the cases there was a bilateral papilledema. This patient died of encephalitis. It has occurred to me that the discoloration of nerve heads which I have noted might be due to some nutrient disturbance.

All varieties of eye disorders may occur in the course of encephalitis. The significant fact is that the eye changes usually occur early in the disease.

Of the eye lesions found in encephalitis, the pupillary changes are the most common. Next in order are paralysis of the external recti (6th nerve involvement) and ptosis. Eye symptoms are present in about 80 per cent of the acute cases and about 60 per cent of the post lethargic cases. One of the frequent findings in post lethargic cases is suppression of convergence and paralysis of accommodation. These later eye sequelae, occurring as they do considerable time after the acute encephalitis, are frequently overlooked.

About three years ago I had occasion to examine two such patients who came to me for glasses. Their distance vision was found to be normal but their near vision was much diminished, due to a

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high convergence insufficiency with lack of accommodation.

DR. E. W. PHILLIPS gave a brief resume of the hay fever situation in the Salt River Valley, calling attention to some new factors which are confusing. One of these is the early and abundant pollination of the rabbit bush weeds this spring, which has brought confusion to those who are treating patients sensitive to Bermuda and rabbit bush both. The other factor is the invasion of Russian thistle which has not heretofore been a factor in the lowlands. Russian thistle is a tumble weed and is slowly making its way from the mountains into the cultivated valleys.

(This presentation of Dr. Phillips has already been published in this journal, February issue, p. 49).

Dr. W. W. WATKINS selected a few of the papers and clinics from the meeting of the College of Physicians in New Orleans, the first week in March, which he attended, and gave a brief summary of the salient points in these, as follows:

Dr. Julius Bauer, of Vienna, spoke on the influence of adaptation and compensation in the development of disease. Many times, the effort to compensate for the effects of a diseased process, or to adapt itself to this, causes the organism to injure itself in another direction, and frequently the compensation or adaptation results in a worse condition than the disease. Instances of this were the hypertension as a compensatory process in nephritis; emphysema in certain lung diseases; stasis in the circulation of the lungs in left-sided heart disease; the epithelial response to irritation in cancer. The adaptive and compensatory processes brought on by disease frequently dominate the whole pathologic picture, and sometimes result in death of the patient.

Dr. David P. Barr, of St. Louis, called attention to the fact that myeloma is not always confined to the bony structures, but may produce lesions of liver, kidneys, lungs, etc.

Dr. H. W. Bettman, of Cincinnati, spoke on chronic appendicitis from the viewpoint of an internist. He took the roentgenologist to task for classing so many conditions of the appendix as pathological. Dr. Watkins suggested that intelligent cooperation between the internist and the roentgenologist would clear up much of the confusion in the minds of such internists as Dr. Bettman. In Phoenix, if there is any error in the x-ray work on the appendix, it is on the side of conservatism.

Dr. W. M. Simpson, of Dayton, O., gave a very complete presentation of tularemia, reporting forty-five cases of his own. He gave the merited credit to Dr. Ancil Martin for his pioneer work in this condition, the first of the writers on tularemia, except Dr. Francis, who have done this. His classification of tularemia is worth remembering. (1) Ulcero-glandular, with a primary lesion appearing from one to five days after exposure; there is a sporotrichosis-like lymphangitis; the glands may be enlarged for months; (2) oculo-glandular, with primary lesion in the eye; (3) glandular without primary lesion; (4) typhoid, with fever, but no primary lesion. There is no specific treatment.

Dr. Frederick Allen, of New York, gave another of his masterly talks on diabetes, with some points which are worth remembering. He said that the general restriction of the diet was of more importance than regulation of the carbohydrates. The use of insulin makes diet regulation even more necessary than management without insulin. There is no way to get away from diet regulation in diabetes, and the total calories is the important part of the regulation. Forget the entire subject of ketogenic-antiketogenic ratio. The average dia-

betic can take from 60 to 120 Gm. of protein, 50 to 80 Gm. of carbohydrates, with the greater part of the calory requirements made up with fat.

In the clinic of Dr. C. C. Bass on malaria, he said that 95 per cent of all cases of malaria will be cured in three or four months by ten grains of quinine by mouth. The subject of malaria should interest the doctors of the Salt River Valley. We are not immune from malaria here; we can have it just as easily as the Rio Grande Valley can, and they are fighting it desperately this past summer. It has been said that the anopheles mosquito is here, and if we should have the added factor of enough people with malaria coming here from the south and staying long enough to inoculate our mosquitoes, malaria will break out here.

The clinic of Dr. Aldo Castellani on fungus infections was very interesting. There is no greater authority in the world than Dr. Castellani on fungi. He described the various fungi which could infect the lung. Occasion was taken to ask him whether the monilia ever invades the joints. This was because of a case of Dr. Beauchamp's with a moniliasis of the lungs, and a hip joint infection. Dr. Castellani said that he has seen two cases of bone infection with this fungus, so that we are reasonably sure of the nature of the condition in Dr. Beauchamp's patient.

Dr. Wm. James and Dr. J. J. Vallarino, of Panama, presented in a clinic, the subjects of the pathology and x-ray findings in intestinal amebiasis. The x-ray findings are much like those of tuberculosis.

Dr. Maud Slye, of Chicago, presented the subject of heredity in cancer, with a resume of her work on mice and the way of making this available for investigation in the human race. During twenty years, Dr. Slye has performed more than 60,000 necropsies on pedigreed mice, whose heredity she had recorded. Of these, some 6,000 had developed spontaneous cancer; in these she knew where the cancer arose in the ancestors, where it became submerged as a recessive trait, and where it emerged again through hereditary influence. Dr. Slye states that four generations of doctors working along the same line, with the proper material and with properly kept records, would be able to establish the same facts for the human race, as she has established for her community of mice.

GOOD SAMARITAN HOSPITAL (Phoenix) (June Meeting)

The medical and surgical staff of the Good Samaritan Hospital met Monday evening June 25th in regular session with twenty in attendance.

DR. BLOOMHARDT of the records committee reported upon the deaths for the past month as follows: Case 3155—Four-year-old child, an operative death to be discussed in our meeting tonight. My suggestion to the staff is that when a case dies during an operation or shortly after, a full history and record be made so that one going over the hospital records may know what happened. There is nothing but a surgery report in this case and that is so brief that one could not gain any knowledge of the case. We of the staff benefit by the discussion tonight, but for the purpose of study and for College representative to examine it would take quite a number of good histories to balance the effect of such an incomplete one.

Case 2809—Diagnosis of chronic bronchial asthma, chronic enteritis of unknown origin. He was a male, 55, and in the hospital for one month. History of six to ten stools a day, with blood two weeks before admission. No pain; lost about

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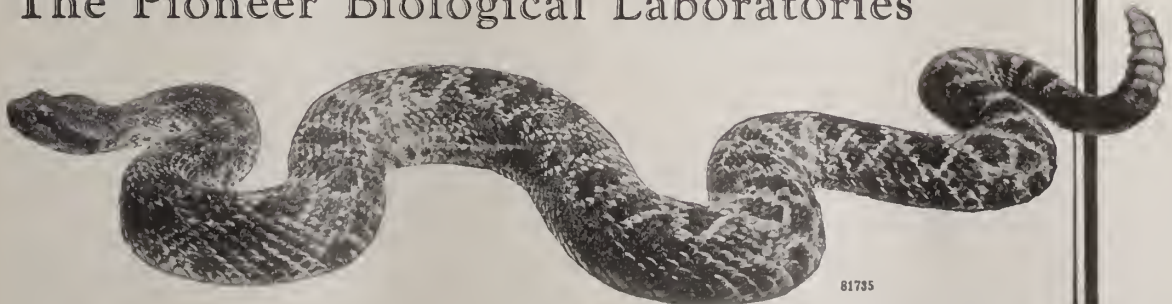
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twenty pounds, this following an attack of tonsillitis. He was admitted April 11, 1928, but there was no stool examination until April 28, and this was the only examination; it was negative. Urine was negative. White blood cell count was 10,600, 82 per cent polys, 17 per cent large monos, one per cent baso's, no lymphocytes. There was a consultation in this case toward the end. The only sign that a consultant had been called was that the nurse had put this in her bedside notes. While in the hospital there were no bloody stools, and not an excessive diarrhea. At first the patient was able to go to the toilet but he seemed to weaken in the course of a month and died. The last ten days of his life he had an extremely low temperature—94 and 95 degrees being charted. The case was a puzzle.

Might I suggest that instead of writing the prescription number on the treatment charts, doctors write the prescription. In the treatment of this case, everything was jotted down as "prescription No. 60969 or 60 so and so," but for study we do not know what was done. The history of long chronic asthma and enteritis trouble might spell one of tuberculosis. The fact that one negative stool was obtained could not eliminate dysentery although the clinical picture, during his stay in the hospital, did not lean toward that disorder.

In regard to anemic dysentery, there always seems to be some in this valley. The use of Yatren-105 has been quoted as showing excellent results. One author's experience in over three hundred cases of acute and chronic forms of the disease leads him to the emphatic statement that for all chronic forms of this dysentery, Yatren surpasses other known remedies. Chronic and relapse cases even of ten years duration rapidly cleared up with doses of one drachm twice daily by mouth. In acute cases, the cure is rapid. Dalmeyer in Java found Yatren to possess undoubted advantages over emetine and emetine bismuth iodide. Stool examinations two or three years after treatment reveal no relapse. Children tolerated the drug well. I thought perhaps this might be of interest.

Case 3130—Burns, gasoline. Body surface involved in the burns beyond forty per cent of the total surface area. Admittedly he should have died, as he did. His treatment was prompt and good.

Recently, there has been some very interesting work done on the treatment of burns. Too often it seems we turn these desperately sick patients over to the treatment of juniors or even to nurses. Recently there has been a definite change in the attitude of surgeons if one can judge by the literature which contains distinct contributions from both clinicians and research workers. It seems to me, at the present time, that the surgical profession is beginning to look upon burns as wounds and not as surgical accidents predestined to live or die irrespective of the surgical treatment which they receive. In burns, we have the same surgical principle involved as in traumatic wounds: namely, primary wound shock, secondary or toxic wound shock, infection and repair. To apply the same principles of treatment to the surgical care of burns as in all other traumatic wounds is, therefore, logical.

Radin, in an excellent paper, speaks of a plan of treatment to the three stages of burns: First, shock which we speak of as a primary wound shock; second, toxemia which is considered as secondary or toxic wound shock; and third, repair. In the primary wound shock, so convincingly demonstrated by Crile, which follows a severe shock to the nervous system, the factors involved are pain, shifting of body fluid and abnormal radiation of body heat. (1) Pain is from exposure of large areas

of terminals of sensory nerves of the skin and their irritation by the air, medicaments or dressings. These are responsible for the unusual degree of shock in burns. (2) Shifting of the body fluid; the capillaries dilate especially in the area of the inflammation and there occurs a pouring out of serum. The consequent concentration of the blood means failing circulation, an inefficient oxygen carrier, oxygen starvation of the tissues, fall of temperature, and finally suspension of vital activities. (3) Unusual radiation of body heat. In addition to the capillary dilation resulting from vasomotor paralysis consequent to the nerve-shocking and dissipation of heat, we have the actual destruction of the skin and subcutaneous tissue and thus the removal of the insulating covering from a large area of the body surface. This is a definite cause in the introduction of primary wound shock. In the treatment of primary wound shock and burns, the indications clearly point toward: First, the relief of pain; second, the combating of the loss of fluid from the circulation; third, the prevention of the unusual dissipation of heat; and fourth, absorption of the toxic products of the burned tissue. The secondary toxic wound shock of burns from a surgical standpoint has been, in the past, most hopeless. Now that we know it is the toxins of the burned tissues which are the factors to be combated, we have a rational therapeutic indication. Ligation of the vessels draining the parts can be done within two hours—experimentally protecting the absorption of toxin. Therefore, in the primary treatment of the wound, an effort should be made to prevent absorption of the toxins. Secondary toxic wound shock demands removal of the dead tissue. Surgical excision, theoretically ideal, is not practical. By the spraying of the 2.5 per cent aqueous tannin acid solution almost continuously upon the necrotic tissues the protein is precipitated in an inert form. The wound is debrided chemically. The covering of the burned surfaces with the tanned, dry, non-absorptive, not-toxic and sterile shield prevents subsequent infection of the wound, combats undue radiation of heat from the body surface, protects the exposed sensory nerve ends and provides a new covering through which new epithelium forms without the constantly recurring traumatization of daily dressings required by the usual methods. Finally, this treatment has resulted in a definite decrease in the number of deaths from burns as a result of primary wound shock, and the final results expressive in the duration of the healing period and in the scar tissue have greatly improved. The treatment sounds rational although I was never privileged to use it and it seems to more nearly reach the ideal than anything we so far have employed.

Case 3015; Senility, nephritis. Male, age 86. Lived his life and nature was kind to allow him to give up the struggle.

The cases for study were as follows:

Case No. 3266 reported by DR. C. B. PALMER as follows: Woman, age 40 years. For the past four days has been complaining of some slight pain in the lower abdomen, but has not been vomiting nor even nauseated, during this time. Bowels kept regular with milk of magnesia; stools are loose, small and light brown in color. Yesterday had been feeling better; last night was suddenly seized with severe cramp-like pain in abdomen. Vomited several times during the night. Took several enemata with little result. Has a very severe headache this morning. No bladder disturbance.

P. H.—Eighteen years ago had a pelvic abscess which was drained through the vagina. In 1922 she had been treated for "boils" around lower abdomen, then developed large "abscess" in this re-

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gion. Laparotomy performed; appendix, both tubes and left ovary removed and wound closed with drainage. Patient went home in fourteen days. She was operated again for abdominal adhesions a few months later. Until two years ago she enjoyed good health. Then she began to suffer from recurrent attacks of lower abdominal pains, the most severe one being in February of this year and lasting about five days. Bowels were completely obstructed at that time. She had vomiting. Menstruation has always been regular.

Married sixteen years. No children. Nothing in family history relative to this illness.

Physical examination: Frail woman, age 40. Head normal. Heart and lungs normal. Abdomen has one scar of two former operations below umbilicus. Abdomen today is very tender over lower portion and also in epigastrium. To left of median line there comes a definite peristalsis causing a large ball to come up and at that time she has extreme pains. Bowels have been kept open every day. In February had a severe attack of partial obstruction of the bowels. Relieved by enemas.

Patient was operated upon. Median incision below umbilicus was made through the old scar. Intestines found bound to abdominal wall and the coils one to the other. A number of bands of adhesions were cut, one unusually tight band about four inches above the ileocecal valve. Right ovary was normal in size. Uterus small and infantile, very few adhesions in pelvis; that is, comparatively speaking. Most of the adhesions seemed to be in the three feet of bowel just above ileocecal valve. Omentum much inflamed. Gas passed through bowel after loosening adhesions. Closure of body wall was made in three layers. Patient made an uneventful recovery and at this time she is in fair condition.

DR. JORDAN asked if adhesions had greater tendency to form after gonorrheal infection. DR. PALMER replied that he thought adhesions usually come from mixed infection complicating gonococcus infections.

Case 1916 was reported by DR. WILLARD SMITH as follows: Male 55 years of age, looked 70. Blood pressure was 182/98. He had generalized dropsy. His left leg was much larger than the right. His scrotum was enormously enlarged. He had a mass of variable size in his left lower abdomen, and also an epigastric hernia about two inches in diameter. He had a marked mitral heart murmur and evidences of renal insufficiency. After keeping him in the hospital two weeks for study, and after Dr. C. B. Palmer saw him in consultation on Dec. 13, 1927, and after beginning the use of digitol, with some improvement in his asthmatic symptoms, it was decided to begin an attempt to benefit him by investigating the abdominal tumor by laparotomy.

On Dec. 15th his abdomen was opened with considerable difficulty and it was determined that the tumor was an enormous bladder diverticulum, communicating through a small one-quarter inch opening with the bladder; three smaller diverticula were present on the anterosuperior surface of the bladder. The large diverticulum was dissected out, the edges of the opening crushed and turned in and the opening closed by four superimposed layers of sutures. The smaller diverticula were turned into the bladder and the muscle wall of the bladder restored by layer suturing. At first he seemed to do well, but on the fourth day urine was draining through the operative wound. There was a colon bacillus infection. He was put on retained catheter and after many closings and openings the urinary sinus seemed to be going to close; by January 25th his wound was dry and stayed so for sometime. On February 1st urine

came through again. February 8th it seemed to be entirely healed again. February 9th dressings were again wet. On February 11th I reopened his abdomen, with adequate help, and in an hour and a half of searching, I was unable to find any diverticulum and could not reach the urinary sinus. Then the urinary fistula seemed to want to get well again, but on March 2nd he had a profuse discharge of urine through the wound. By March 5th it was dry again. I had Dr. C. B. Palmer see him in consultation and also Dr. Thayer, and as Dr. Hamer had been watching him very closely I sought his opinion, and we all agreed that the enlargement in the prostatic region would have to be relieved. On March 9, I approached his prostate by the perineal route. I incised both sides of the capsule and was able to wipe out the entire prostatic content which was of mushy consistency and contained flocculi of pus. This healed, as prostatic abscesses heal when thoroughly cleaned out. By March 26th there was just an occasional wetting of his abdominal dressings and his perineal wound was healed. We had a lot of vicissitudes in this extremely prolonged catheterization, which was sometimes continuous and sometimes intermittent, and we endeavored to educate him in retention and urination. On March 30 I have in my notes this statement: "Except for the fact that he isn't cured, he is getting along pretty well." At this point in the history Dr. Vivian entered the case for we all felt that we needed someone with more knowledge of urology. On March 31st, 1928 Dr. Vivian began a long series of cystoscopic studies and it seems that he found this reticulated bladder with various depressions or bladder diverticula here and there, and he had some x-ray study made of it which showed one diverticulum evidently springing from the lower left portion of the bladder. Dr. Vivian used electrothermic methods in enlarging the urethral outlet from the bladder and was extremely faithful in continuing his attempts to get a permanent relief of the obstruction at the bladder neck, but as fast as he would burn away a channel, it would refill with tissue. No one could have been more faithful or persistent than Dr. Vivian was, nor could a more exasperating condition be presented. Just how many times Dr. Vivian has burned a channel through the neck of this bladder I do not know, but in the course of this procedure the patient suggested that we might while away some time by getting rid of the big hernia in his left scrotum. So, on April 30th, 1928 I operated and found in his right scrotum a large part of his ileum, practically all of his ascending colon, and a mass which proved to be his appendix. This appendix was six inches long, 1½ inches in diameter and had two diverticula. In general appearance it looked like a Sahuara cactus by moonlight. The lumen of the appendix was entirely closed off from the cecum and its content was inspissated mucus. He recovered from this operation very nicely and Dr. Vivian kept working along at the neck of the bladder and the patient kept intermittently discharging from his urinary fistula. His residual urine varied considerably but never disappeared. By June 12th he was having twelve ounces of residual urine. On this date Dr. Vivian had the cystoscope in him twice and did some things to the neck of his bladder.

On June 13th he started back for his home in New Jersey and at Dr. Vivian's suggestion he will go under the care of Dr. Collings of New York. Dr. Vivian expressed the opinion that the bladder neck condition is malignant and I am inclined to agree with him.

The patient's asthma is better; his dropsy has disappeared; his heart is much improved. He

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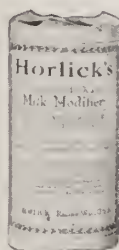
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still has the epigastric hernia. His inguinal hernia and enormous scrotal tumor, together with his freak appendix have been satisfactorily disposed of. He still has intermittent drainage from the lower end of his laparotomy wound. He has the evidences of several new bladder diverticula. The diverticula on his appendix are of interest. If there is such a condition as diverticulosis, he has it. He also probably has a malignant growth in the bladder neck and I presume the next step will be radium.

DR. VIVIAN said this case illustrated that one cannot tell what is in the bladder by putting a finger in the rectum. A remarkable feature of this case is that the man has a greatly reduced kidney function and yet stood three major surgical operations remarkably well. Dr. Vivian had a lantern slide showing the lateral lobe and central lobe enlargement encroaching upon the urethral passage. In this case the obstruction recurred nearly as fast as the tissue was removed. The diverticula of the bladder depended upon the obstruction. It is necessary to remove the cause of straining at urination in order to relieve the formation of new diverticula. Dr. Vivian expressed his opinion that the case would probably prove to be malignant.

DR. BLOOMHARDT asked where the focus of malignancy probably lay. DR. SMITH replied that the prostate was a mass of mushy material apparently a simple hypertrophy of the prostate gland. He regretted he had not examined it but there seemed to be no indication of malignancy at the time.

Case No. 3155. In the absence of Dr. Bailey was reported by DR. McINTYRE. This was a four-year-old child, sickly and anemic. He had inhaled a cartridge shell of calibre 22. X-ray showed the shell within the bronchus. The child was anesthetized and the bronchoscope was introduced. The bronchus was found badly swollen. The shell was located. Each time traction was applied the child would stop breathing. The bronchoscope had to be withdrawn three or four times and the child resuscitated; the last time the child failed to breathe again.

DR. DUDLEY SMITH, of San Francisco being present, was introduced and asked to discuss any subject he chose. He said his field is the treatment of the rectum and colon. This is a field which is routinely treated without examination. The colleges have uniformly given but little training in rectal and colon diseases. The quacks and charlatans have found this a lucrative field.

Any case with blood in the stools should have a proctoscopic examination up to at least ten inches. Many cases of rectal cancer could have been found even by digital examination. Many of these cases are treated for simple hemorrhoids. A thorough diagnosis should always be made before treatment is instituted. Rectal polypi are always potential malignant growths. He reported one case of small polyp which showed adenocarcinoma tissue. The polypi should be removed by electric cautery. Fulguration may be used but this destroys the tissue so that examination for possible cancerous tissues is precluded. He demonstrated a new instrument which he had just had made for withdrawal of the smoke when the electro-cautery is used. The instrument can be used to remove the smoke when electric cautery is used in any of the cavities. He thinks this instrument may be adapted to any cavity as well as to the rectum. In examining the rectum, a highly sensitive condition is often encountered. Dr. Hanes of Louisville, Ky., suggested a practical method: K.Y. jelly and 15 per cent cocaine is worked carefully into the anal ring; he finds that the most sensitive cases can then be examined.

He also demonstrated one or two other new instruments which he was taking back with him for use in his clinic. He spoke of Dr. Coffey's operation for cancer of the rectum and said he himself preferred a two stage operation doing first a colostomy along side of coccyx and then removing the rectum. With spinal anesthesia and rapid operation, the one-stage operation is often successful.

DEACONESS HOSPITAL (Phoenix) (May Staff Meeting)

The medical and surgical staff of the Arizona Deaconess Hospital met Monday evening, May 28, 1928, from 8 to 9 o'clock. Seventeen in attendance.

DR. BLOOMHARDT of the Records Committee gave the following report of the deaths for April:

Case No. 2936: Diagnosis pernicious anemia. A very interesting case; in fact, I think sufficiently interesting to be given before the staff in detail at future meeting. History: 17-year-old unmarried girl; menstruated for first time last September, flowed intermittently for six weeks. Had a transfusion in November. Felt fine until March at which time she menstruated for the second time in her life. After two weeks, flowed again and became very weak. At this time, she had subconjunctival hemorrhages of both eyes, frequent nose bleed lasting one to two days and very difficult to control. No history of hemophilia. When admitted hemoglobin was 30 per cent and R.B.C. 2,430,000.

Some interesting work is being done experimentally and clinically on anemia, especially of aplastic type. Berchtold has found, in large doses, adrenalin causes many more young forms of both red and white cells to be seen in the blood emerging from the nutrient vein of the tipia. There is evidence that absence of normal secretion of the adrenal gland may produce anemia. Addison's disease is accompanied by anemia. In children suffering from sarcoma there is marked anemia. I mention this for its interest and because it is a new work.

Case 2866: Diagnosis septicemia and pneumonia. Fourteen-year-old girl. Unusual history of difficult menstruation two or three weeks previous to entrance to hospital. She took medicine, most probably ergot. Later, she developed a vaginal discharge. Extreme pain in the lower abdomen right and left. Taken to the Crittenden Home and later to the hospital. Physical examination showed a double pneumonia and tenderness of entire abdomen. She died the third day. Autopsy, consolidation of the lower lobes of both lungs. The abdomen was entirely negative and no evidence of there having been a pregnancy.

As matters stand at present the specific treatment of pneumonia applies to types 1 and 2. Death rate of Type 3 treated with serum in monkeys and men identical with that of untreated cases. In Type 4 one has to deal with a group of pneumococci consisting of a large number of biologically different types. It is obviously impossible to make an efficient serum from a single strain of this group, although it might be possible to prepare a polyvalent serum. I was pleased in this case to read the diagnosis of pneumonia and septicemia. Baldwin and Cecil in a very extensive and prolonged study of pneumonia in summarizing their conclusion, make use of the statement: "Death in pneumococcus pneumonia is accompanied in a very high percentage of cases by pneumococcus septicemia, and, vice versa; septicemia is usually followed by death."

Case 2748. White married female, age 22. Two days before admission, had partaken of three large meals, drunk considerable beer. Became ill in the evening, vomited, took some magnesium citrate.

At midnight became very ill. Doctor was called and gave her sufficient morphine so that the pain became easier. History jumps from this point to the day of admission into the hospital at which time she was operated. Appendiceal abscess was found; the gangrenous appendix was removed. After several days the patient died.

Case 2738: Age 8. Ruptured appendix. Became very ill 24 hours before admission and operation. Abscess found and appendix dug out and removed. Stormy course and death on the tenth day.

Case 2554. Patient was admitted on April 6th and died April 11th. From that time up until today, May 26, 1928, the doctor in charge has not given a history, physical examination nor made a diagnosis. It is rather too bad because there is, apparently, an interesting history; in fact, the size of the history resembles the family Bible.

Nurse's notes are good, laboratory reports are good, consultation notes (there being three consultations), were excellent although differing to some extent in opinions. A history such as this in my opinion as it stands is valueless and besides has taken a great amount of time and has been of considerable expense to the institution.

Case 2849—Nothing of particular interest. Past middle age, male, whose time had come. Diagnosis: myocarditis, anasarca, enlarged liver.

Case 294: Epidemic meningitis. Good history back of an excellent record in every detail and valuable for statistic purposes, treatment, etc.

It might be of interest to briefly review the interesting work of the Russian surgeon, Spensky. He investigated the problem of how the cerebro-spinal fluid acts as a barrier between the blood and the nerve tissue. As you know, substances in the blood do not necessarily pass into

the cerebro-spinal fluid, or if they do, they may have no action on the nervous tissues and this fact has its disadvantages when it comes to the treatment of infections of the central nervous system. He found, for instance, the toxins of tetanus do pass through and are fixed in the brain, but the antitoxins do not pass through. So that the introduction of specific anti-bodies in the subdural space and subarachnoid spaces does not insure penetration into the brain. His method of overcoming this obstacle is by withdrawal of the fluid at the same time that the injection is made. In a group of twenty rabbits, for instance, he injected antitoxic serum into the blood and then in half the animals withdrew some of the cerebro-spinal fluid. After one or two hours, the brains of all twenty animals were inoculated with the virus of rabies. All those in which the fluid had been removed remained healthy while all the others developed rabies. His work has not been altogether experimental. Where he has applied it in critical cases of tetanus and meningitis, he has obtained successful results. One is accustomed to the theory of drawing out cerebro-spinal fluid at times for relief of symptoms and to a certain extent, for removal of infection, but the idea of doing it to improve the effect of injected remedies is an advancement.

Case 2726. Left hemiplegia, terminal left lobar pneumonia. Age 48. Everything good about histories. Consultations also are good.

The following cases were reported:

Case 3043: Acute gangrenous appendix, ruptured, reported by DR. FELCH. This was a Mexican man 23 years of age. On entrance had complained of pain in abdomen. He became ill 36 hours before admission with sharp sudden pain in lower abdomen which gradually settled in right side. Short



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time before admission the pain decreased. He had never had any previous similar attacks. Operation was done on the 11th, the day he was admitted to the hospital. The abdomen was found full of milky watery white fluid without odor. The appendix was gangrenous and ruptured. Two rubber drains were placed within the abdomen. Examination of the appendix showed diffuse inflammatory infiltration of the walls with extensive necrosis, and exudate on the surface. The urine showed granular casts; the leuk. count was 9,800. Patient made a good recovery and was discharged 16 days after admission. The wound, however, was still draining. The early part of the course was stormy. Patient was highly nervous, unable to sleep and appeared desperately ill; 55 c.c. 10 per cent glucose in normal saline was given intravenously and later 100 c.c. of normal saline was given intravenously, 55 c.c. normal saline was given the next day; from this on the patient made a splendid recovery.

Case 3096 was reported by DR. C. B. PALMER. Patient states that he has always been well. Not subject to sore throats. No tuberculosis in family. About 14 months ago, began having swelling under the lobe of the right ear; it is gradually becoming larger and there has been considerable pain down the neck on the right side. Examination shows a well developed man. Head is normal with exception of the presence of a tumor under the lobe of right ear, which extends up to canal of the right ear. Glands of neck are not enlarged. The swelling is not attached to the skin or to the bone of mastoid. Seems to be attached to parotid gland. It is smooth and has rather a clicking action when moving backward and forward. This is not lobulated. Diagnosis of bronchial cyst from second cleft was made. Operation revealed a cyst filled with sebaceous material which was remove. It was attached to the styloid process on the right side. The histological findings are as follows: Sections show a dense fibrous capsule and beneath this a thin layer and scattered islands of squamous type epithelium. Adjacent to this is a larger mass made up of irregularly branching fibrous stroma with small alveoli and strands of deeply staining atypical cells of varying morphology, but probably epithelial in source. This is evidently a carcinoma probably branchiogenic in origin. Patient left the hospital two days later in good condition.

Case 2961 reported by DR. STROUD as follows: An ovarian cyst in a 17-year-old girl. The features which make it interesting are more in diagnosis than treatment. History was important, but physical examination proved to be the determining factor when an operation was considered.

Female, age 17, height 5 feet, 6 inches. Present weight 105, and has always been a little underweight, 102-105. Has felt poorly and run-down for about two years; is a high school student but has had to quit school for the last three months on account of health. Her mother is 49, and well. Father suicide at 53. Has two brothers and four sisters all well. Former illnesses: Bronchitis, acute at 8 years of age; has had measles, mumps, whooping cough, chicken pox and small pox; lately has had two attacks of tonsillitis and throat and tonsils are sore now, May 12th. Present illness began about four months ago. She has had nausea and vomiting; some soreness lower abdomen on both sides and was too weak to walk at times. Had subnormal temperature. The abdomen began to become enlarged in lower part a month ago, and has been growing ever since. Nausea lasted four to five weeks but is now gone. Still feels uncomfortable in lower bowel—slightly better past week. Menses normal.

Examination revealed large mass in lower abdomen which is smooth and hard, a smaller mass on upper surface as large as a small foetal head, but seemed to jut out of the mass instead of being within. A souffle was heard equally over the whole mass corresponding to the pulse rate. No other sounds heard. The mass seemed to be more abruptly placed than the ordinary pregnancy, the edges apparently shelving off more suddenly than a pregnant uterus. On lying down the mass did not fall away as much as would a normal pregnancy. The cervix was small hard and virginal, but the mass was not distinguishable from the uterus; in fact, the origin of the mass could not then be determined because of its size and because it was placed in the center of the pelvic region. Tenderness was more to the right than the left side and extended upward as far as McBurney's point. Left side not tender. It was hard to rule out pregnancy so while prone an attempt was made to move the mass upward. It was found freely movable so the lower border was at the umbilicus. This definitely ruled out pregnancy, and while the mass was in this position another bimanual examination was made and the uterus was found normally placed—small and normal. Diagnosis was then made of ovarian cyst arising from the right side where she had complained of pain and tenderness.

On the 26th she felt much better, color was better and temperature normal. The mass which had grown rapidly for the month previous had stopped growing. Examination revealed the same mass and a diagnosis of one large ovarian cyst with daughter cysts above was made and operation advised. This was consented to, and she arrived at the hospital May 2nd. Operation confirmed diagnosis. No difficulty in getting mass out. Fallopian tube removed as blood supply would have been inadequate to support it properly. It was enlarged but patent. Uterus normal. No other abnormality seen. Convalescence uneventful.

Meeting adjourned.

(The secretary was unable to preserve the discussions and apologizes to those who discussed the excellent reports).

ORVILLE HARRY BROWN, Secy.

PERSONALS

DR. FRANK MILLOY and family, of Phoenix, returned August first from a month's vacation on the Pacific Coast, part of which was spent in special work in San Francisco.

DR. W. WARNER WATKINS and family, of Phoenix, returned August first from a vacation of five weeks in Southern California.

DR. JOHN WIX THOMAS, with Mrs. Thomas, is still on vacation. He will return about September first. After a month in Los Angeles, he motored to the northwest, visiting Seattle and intermediate points.

DR. WIN WYLIE and family, of Phoenix, are spending several weeks of the summer vacation motoring through the northwest and western Canada.

DR. DUDLEY FOURNIER and family, of Phoenix, left August first, by motor, for Montreal where his vacation will be spent.

DR. HARLEY YANDELL, of Phoenix, is spending August in postgraduate work at University of California and at the General Hospital in Los Angeles.

DR. F. L. REESE, of Phoenix, has returned from several weeks postgraduate work in St. Louis and other points in the middle west.

DR. GEORGE M. BROCKWAY, of Phoenix, has returned from vacation of several weeks. He visited his old home in Massachusetts, and toured through New England.

DR. SAMUEL H. WATSON, of Tucson, will spend

the months of August and September in postgraduate work, visiting various centers in the east.

DR. WILL WILKINSON, of Phoenix, and family, have returned from several weeks of vacation on the Pacific Coast.

DR. C. F. W. KOHLENBERG, recently of Los Angeles, Calif., has been added to the staff of the Copper Queen Hospital at Bisbee, and has moved his family to that city. Dr. Kohlenberg is a graduate of Northwestern University, and has been one of the house physicians at the Los Angeles General Hospital for the past two years.

DR. R. B. RANEY, of Phoenix, who concluded his work as resident physician at St. Joseph's Hospital in March, has been taking care of the practice of DR. CHAS. W. SULT during the summer.

DR. A. C. KINGSLEY, of Phoenix, has returned to his work after several weeks vacation and special work in industrial surgery.

DR. JOHN J. McLOONE, of Phoenix, writes that he has been enjoying a delightful tour of Europe, visiting Ireland, London, Paris, Cologne, Berlin and Copenhagen. At the latter point he attended the first International Triological meeting, which registered 700 members from 41 different countries.

DR. HARLAN P. MILLS, of Phoenix, with Mrs. Mills, left August first for a tour of the national parks, going via Denver and the Yellowstone. He will be gone until early in September.

DR. THEODORE I. TARASOFF, of Phoenix, formerly located at 223 West Monroe St., announces the removal of his offices to the Security Building of the same city.

STATE HOSPITAL ADDITION:—The contract for the new hospital building for men at the State Hospital for the Insane, at Phoenix, has been let. The building will cost \$88,000 and is to be finished within six months.

SOUTHSIDE HOSPITAL, at Mesa, Ariz., has placed Miss Martha C. Nesbit, R.N., in charge, as superintendent, succeeding Mrs. J. R. Hansen who remains as surgical nurse.

COCHISE COUNTY MEDICAL SOCIETY met on July 12th. at the city council chambers in Bisbee. The chief talk of the evening was by Dr. George A. Bridge, on fractures of the pelvis, reviewing a number of such injuries, with the manner of treatment and management.

DR. ROBERT C. KIRKWOOD, formerly located at the U. S. Public Health Service Sanitarium at Fort Stanton, N.M., and at the Veterans Bureau Hospital at Fort Bayard, has located in Albuquerque, where he will practice his specialty of diseases of the chest.

NEW UNIT AT ST. MARY'S HOSPITAL, TUCSON:—An infirmary unit for the Sisters of St. Joseph will be built in connection with St. Mary's Hospital in Tucson. The infirmary will be for the sisters of the order who are tuberculous, and the cost of it will be borne by the administrative unit of the Order of St. Joseph of St. Louis, Mo. The unit will have six private rooms and a large ward, and will connect with the present hospital by a covered passageway and concrete ramp.

RABIES IN ARIZONA:—Warning has been issued by Dr. F. T. Fahlen, Superintendent of Health of Arizona, of the increasing prevalence of rabies in certain districts of Arizona, especially Gila and Maricopa counties. The medical profession has been appealed to to help curb this epidemic.

CITY-COUNTY HOSPITAL, EL PASO:—Dr. A. H. Butler, former assistant health officer, has been appointed superintendent of the City-County Hospital at El Paso. Three internes have been appointed, also, as follows: Dr. F. H. Blanchard, graduate of Tulane University, Dr. Charles Powell, graduate of Tulane University and Dr. T. Waggoner, graduate of Baylor University.

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INTERSTATE POSTGRADUATE ASSEMBLY OF NORTH AMERICA

This Assembly is to be held in Atlanta, Ga., October 15th to 19th. Its program gives a very attractive list of Diagnostic Clinics in the forenoons of the five days, with papers and addresses in the afternoons and evenings.

The program allows no time for social affairs, all of the periods being allotted to intensive study and demonstrations. Many eminent clinicians and surgeons from abroad will take part in the program, among them being Sir Hugh Thursfield of London, Dr. Edmund Gros of Paris, Dr. O. Beuttner of Geneva, Mr. William Ibbottson of London, Mr. J. E. McDonagh of London, Dr. D. D. J. Cranwell of Buenos Aires, Mr. T. P. Dunhill of London, Dr. L. S. T. Burrell of London, Prof. L. S. Dodgeon of London, Mr. Farquhar MacCrae of Glasgow, Dr. Otto F. Leyton of London, Mr. Archibald Young of Glasgow, Mr. Donald Core of Manchester (Eng.) Mr. L. L. Cassidy of Dublin, Sir Farquhar Buzzard of Oxford.

COMPILATION OF DIETS

California State Dietetic Association. Elizabeth Hayward, 2826 South Hope St., Los Angeles, 1927. 70pp., leather binding. Price \$5.00.

The Compilation of Diets by the California State Dietetic Association is a very convenient and practical manual. It contains diet lists besides many useful recipes for all conditions treated by dietetics. The book is put up in a form for ready reference. There are many things that can be conveniently found there that would consume considerable time in searching through the larger and more comprehensive books on dietetics. Its great value to the busy doctor lies in this fact that he can so readily turn to it and find just what he wants. It is revised yearly by the California State Dietetic Association and being in a loose leaf form can be kept up-to-date. This gives the manual an added value in keeping one from falling behind in this important line of treatment. I find it a great help to me and recommend it to all those interested in the practice of medicine.

PAUL B. ROEN, M. D.
Hollywood, Calif.

BUREAU OF PUBLIC HEALTH OF NEW MEXICO GETS HARD BOILED: After nearly nine years of a policy of explanation and persuasion in the enforcement of health laws and regulations, the New Mexico Bureau of Public Health announces a change of policy. Hereafter, physicians who fail to make the required reports will be prose-

cuted. The first one to run foul of this changed policy was Dr. John H. Sanford of Santa Rosa, who failed to send in the required birth registration reports and was prosecuted by State Health Officer G. W. Lockett. He was given a suspended sentence, though he paid the costs assessed. Dr. Lockett is determined to get New Mexico into the registration area, even if he has to put several New Mexico doctors in jail, in order to attain this end.

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BOOK REVIEWS

BLOOD AND URINE CHEMISTRY.—By R. B. H. Gradwohl, M.D., Director of the Gradwohl Laboratories, St. Louis; and Ida E. Gradwohl, A.B., Instructor in the Gradwohl School of Laboratory Technic, St. Louis. 542 pages, 117 illustrations and four color plates. C. V. Mosby Company, St. Louis, 1928 Ed.

This work has been much enlarged and brought up to date by Dr. Gradwohl, until it represents the latest word on the methods and interpretations of blood and urine chemistry.

The book covers a broad field, and falls naturally into two divisions in its appeal to two different classes of readers.

For the student and technical laboratory worker, Part I on the Technic of Blood Chemistry and Part II on the Chemistry of Urine, make these usually difficult subjects very plain. Particularly, the part devoted to technic is so carefully worked out, that it will be invaluable to the busy technician.

For the clinician, Part III given up to the interpretation of blood chemical findings and Part IV on Basal Metabolism, will fill a long felt need in these fields. More than 100 pages are given up to the interpretation of blood sugar findings, and nearly as much to the interpretation of the blood chemistry of nephritis. The last section of about 90 pages are devoted to the interpretation of the basal metabolic findings.

This book will find its rightful place on the desk of every clinician who aspires to be abreast of the advances in medicine, and it will be frequently consulted wherever it is a part of the library.—C.N.B.

NEW AND NON-OFFICIAL REMEDIES, 1928, containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on Jan. 1, 1928. Cloth. Price, postpaid, \$1.50. Pp. 489 XLIX. Chicago. American Medical Association.

This book is the work of a distinguished organization, the Council on Pharmacy and Chemistry of the American Medical Association, which some twenty years ago was founded to clean out the Augean stables of proprietary medicines. The Council's plan was and has been the publication annually of a book containing descriptions of those unofficial preparations which after careful investigation have been found worthy of recognition and consideration by the medical profession. Such has been the devotion of the Council members, who serve without remuneration, and such the recognition achieved by their work that today the book describes all the new proprietary products which have a scientific base and which give promise of therapeutic usefulness. The physician who best safeguards his own interests as well as those of his patient will give no consideration to any proprietary medicinal agent which is not listed in New and Nonofficial Remedies.

THE PRINCIPLES AND PRACTICE OF OBSTETRICS, by Joseph B. De Lee, A.M., M.D., Professor of Obstetrics at the Northwestern University Medical School; Obstetrician to the Chicago Lying-in Hospital and Dispensary, and to Evanston Hospital; Consulting Obstetrician to Provident and Evanston Hospitals, etc.; with 128 illustrations on 923 Figures, 201 of them in colors; Fifth Edition.

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It is enough for the reviewer to say that this book is from the press but a few days and that it has been thoroughly revised. The chief thought the author had in mind in the revision was the general practitioners by whom most of the obstetrics is handled. There are 1140 pages with an index which has been most carefully prepared so that ready reference may be made to any subject. There are numerous references to the literature—placed at the ends of the chapters. The work of the publishers is up to the usual high standard. The volume is much less bulky than former editions.

Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1927. Cloth. Price, postpaid, \$1.00 Pp. 103 Chicago :American Medical Association, 1928

The Council on Pharmacy and Chemistry of the American Medical Association annually publishes the reports which tell the reasons for non-acceptance of those products which during the year it has found unworthy of recognition. Some of these reports have been published in abstract in the Journal; all are contained in full in the volume which is the subject of the present review. The physician who has learned to ask the manufacturer's "detail" man, "If it is not in New and Non-official Remedies, why is it not?" will find here the answer which that personage will no doubt hesitate to give him. The book shows the practical working out of the principles which the Council's experience has shown to be essential in its fight for rationality in the field of proprietary medicines.

BEDSIDE DIAGNOSIS, by American authors, edited by George Blumer, M.D., David P. Smith, Clinical Professor of Medicine, Yale University School of Medicine; Attending Physician to the New Haven Hospital; Containing 890 Illustrations; Three Octavo Volumes, totaling 2820 pages; Philadelphia and London; W. B. Saunders Company, 1928; \$30.00 a set.

These three volumes constitute a reference work of splendid clinical value. The authors have avoided insertion of the unproven and fantastic. Their recommendations are practical and established. Each disease is discussed by a specialist from the standpoint of a general practitioner. The editor has taken particular pains to see that one portion is not over done to a detriment of other portions. Professor Blumer has evidently supervised and edited the work with great care. This is a splendid reference work for any physician's library.

GYNECOLOGY, by William P. Graves, A.B., M.D., F.A.C.S.; Professor of Gynecology at Harvard Medical School; Surgeon-in-Chief to the Free Hospital for Women, Brookline; Consulting Physician to the Boston Lying-in Hospital; with 408 Half-tone and Pen Drawings by the Author, and 153 Microscopic Drawings by Margaret Concrec and Ruth Huestis, with 128 of the Illustrations in Colors; Fourth Edition, thoroughly revised; Philadelphia and London; W. B. Saunders Company; 1928. \$10.50.

This is a book of 1016 pages, with excellent text, illustrations and type. The subject is covered in the most exhausting manner for a text, and reference book. At the end, preceding the index, is a bibliography of over ten pages. The author makes ready reference to the literature and hence has prepared a volume which does not lose its value with

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The illustrations from the author's own brush deserve especial notice. They come near giving one the impression of gazing at the operative field.

The author's language is well chosen and clear. In places he uses words which might well have been omitted. For example, on page 637, under paragraph on gynatresia, third line, he says: "It is quite commonly believed that most atresias of the vagina are the result of some congenital defect." The words "quite" and "some" are superfluous and detract from the strength of the sentence. He probably means congenital defects instead of "some congenital defect."

The reader will find that he has to refer to the dictionary at intervals to gather the meaning of words for which there are more commonly used synonyms. This should not be regarded as a criticism.

Those interested in gynecology and general surgery will find this an excellent reference work. The publishers art is beautifully executed.

INTERNATIONAL CLINICS, by leading members of the Medical Profession throughout the World; Edited by Henry W. Cattrell, A.M., M.D., Philadelphia; Volume II, 38th Series, 1928; J. B. Lippincott Company, Philadelphia and London.

A number of articles in this volume deal with the history of medicine especially in the period since 1891. They are all worth close reading. Of special interest may be mentioned the one by James J. Walsh of New York City. He mentions Mendel's lectures on cerebral apoplexy, Ewald and Boas's work on the stomach, Leyden's discovery of the Charcot-Leyden crystals, Senator's introduction of the salicylates for rheumatism, Koch's claims for tuberculin (whose work was presented prematurely because of undue urging by the young German Kaiser who wished to have a striking discovery announced at the International Congress of Medicine which met in 1891 at Berlin), hypnotism's rise and fall, opotherapy, specific sera, blue light therapy, Rollier's sunbath treatments of surgical tuberculosis, and prostatic surgery. He stresses particularly the conservatism which has been displayed in the pages of the International Clinics in advising the use of new remedies. Regarding the use of tuberculin he says: "It was one of those instances in medical history where there is a very clear demonstration that the old axiom 'be not the first by whom the new is tried' is an excellent medical aphorism, though of course it must not be forgotten that there is another portion to the aphorism, 'nor yet the last to lay the old aside,' which is quite as important."

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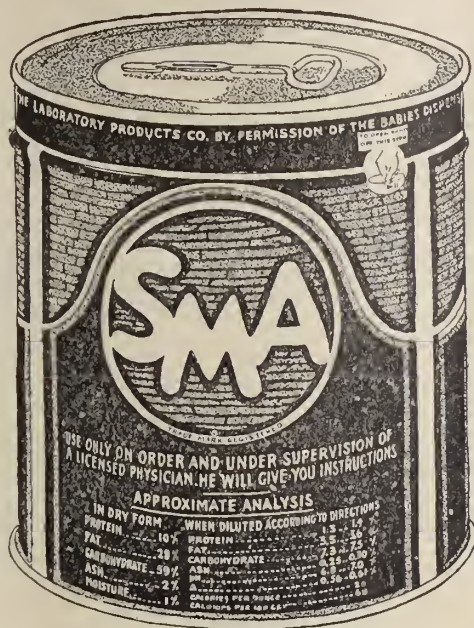
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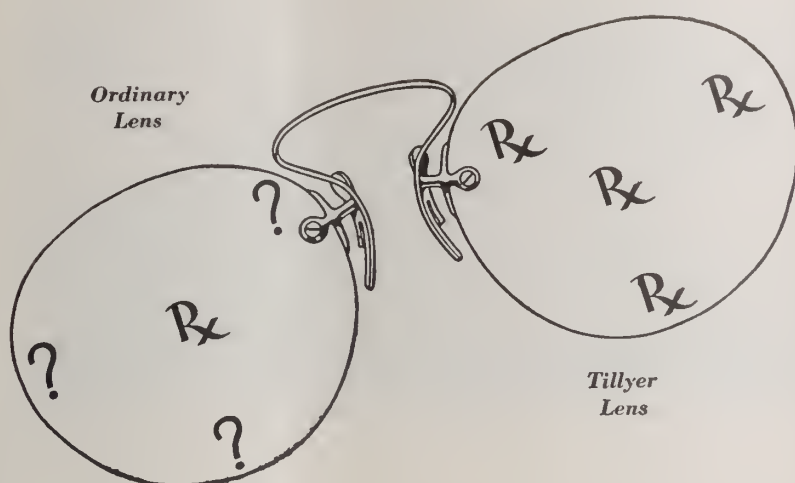
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THE CANCER PROBLEM

JAMES F. PERCY, M. D.

Los Angeles, California

Oration on Surgery before the Arizona State Medical Association,—Thirty-seventh Annual Meeting, Tucson, Arizona, April 19th, 1928.

The practical phases of the problem of the treatment of cancer today should not be concerned with the elusive subject of the cause or source of the disease, but rather with the consideration of the methods that we already have for its most effective management. The general and almost unlimited pessimism of medical men and women relative to doing anything adequate in the treatment of the disease, is also a great factor in permitting its present unhindered mortality rate. Combined with this is the failure of both physicians and surgeons to recognize that there are several procedures available which are of unquestioned and also of pre-eminent value in its treatment. These two most potent factors constitute the largest element in what we conceive to be the cancer problem.

The determination of the cause of cancer can, therefore, well be left to those best qualified to unravel the mystery that surrounds it, while we proceed to discuss the more practical and hopeful phases at hand for its destruction as a very essential primary effort in its management.

I once inquired of a professor who held the chair of pathology in a German university, if any one would ever uncover the cause of cancer. For a moment he seemed lost in reverie, and then replied, somewhat after the manner of the oracle at Delphi—"He who first tells us the cause of cancer will be in a position to describe the anatomy of the human soul." This was in 1898, and to date his reply has not been improved upon or made obsolete by anything that has come to us from the ubiquitous field of cancer research. But suppose someone does reveal the basic factors in its causation; we have no guarantee that it will reconstruct the problem of its treatment, or make it either easier or more effective. Koch an-

nounced the findings of the bacillus of tuberculosis in 1882, but, aside from completing the demonstration of the infectiousness of the disease, nothing in its better treatment has resulted from his brilliant and epoch-making discovery. There is, I must re-emphasize, no disease so easy to put an end to, as early accessible cancer, by several recognized and well-known present day methods. My conception of the best of these measures will develop as we proceed. It is also well within the realm of probability that the means which we already have for the treatment of cancer will never be improved upon. This implies that we have, if we would but recognize and use them, everything needed for the successful handling of the condition.

Why then a cancer problem? In other words, what is back of the present pitifully obvious indifference and unconcern of both the medical profession and the public, relative to doing something worth while to both hinder and to destroy cancer? The answer is simple. First, the cold knife. This instrument has probably done more to discourage the victim of cancer and his surgeon from undertaking the early treatment of the disease than any other one factor. Glaring faults of technic when employing the cold knife, must also come in for a share of the resulting fear that this instrument has bred. For, in spite of its unquestioned value in rendering many cancer victims symptom-free for years and giving to unrecorded additional numbers a well-worth-while form of palliation, it has rarely been employed in a manner that keenly recognized this easy predisposition to both incite and spread cancer in the tissues. In this way, therefore, it has often been made to be the ideal vaccinator from and beyond every contaminated area or process that it invades, whether cancer, tuberculosis, actinomycosis, or osteomyelitis. The careful surgeon changes his scalpel after incising the skin, in opening the abdomen, for fear of carrying surface skin infections to the peritoneum. He likewise often deems it necessary to replace his

gloves before proceeding further, following the accidental invasion of an infected area. In addition, he has the sterile field renewed, and all of the sponges about which there is the slightest doubt, discarded. But not so in operating cancer. He keeps the same gloves, the identical knife and clamps and sponges, and continues to use them over and over again. Streptococci, et cetera, must be recognized, respected, and thwarted, but the much more venomous and hellish cancer process can be dismissed with a more perfunctory and reckless technic.

The unsatisfactory results following treatment with the cold knife in the late cases, have also had much to do with the proverbial delay upon the part of the patient in seeking early surgical relief. It is a vicious circle. The patient's primary dread of the knife is later substituted for the fear of his cancer, the successful treatment of which he sees no hope of accomplishing through the methods of present-day surgery.

When the medical profession succeed in educating themselves, as they finally will, regarding the, at present, little appreciated possibilities for good in cancer surgery, the public will soon learn of it, and a new day will have dawned in America in the surgery of cancer. This will gradually reverse the unfortunate attitude that now characterizes the course of its average victim, and will result in the prevention of much of the present suffering and the saving of lives that are now needlessly lost. The fear of the knife—instead of dismay at the appearance of cancer, (which would seem the logical thing)—the medical profession is doing but little to minimize either by precept or technic for those so afflicted. But when they have passed the primary stage of apathy regarding their growth, and reached the one of alarm and finally of terror at its malign progress, they are ready to accept almost anything that is offered in the way of treatment, no matter how extreme, desperate, or bizarre it may be. The exceptions to this rule in the late cases are so few, in my experience, that they can be ignored in this discussion of the cancer problem. If the cold knife is now employed in the usual stereotyped way, the ultimate results in the great majority of the patients so treated cannot fail to be far from satisfactory, and thus the present almost mass psychology resulting in horror and panic regarding the employment of the cold knife in the treatment of cancer, is perpetuated.

The late John Byrne of Brooklyn, New York, one of the first, if not the first, to condemn the indiscriminating use of the knife in cancer surgery, said in his Presi-

dential address before the American Gynecological Association, in 1892—"That operative surgery in this particular phase of cancer (uterine) is in many respects more dangerous than the disease for which it is undertaken, and, as the majority of all patients afflicted would live longer without than with it, it is not a safe or a useful operation, and, as such, is unjustifiable."

The belief has gradually grown through the years that we are helpless in the presence of cancer. It has been handed down from the fathers, and seems to have assumed almost the proportions of a fetish. Now too many seem determined to continue to assume that this "belief" is true. As a result, we have lain down on its treatment, except in a futile sort of a way, and so have our patients.

A second important element in the present day cancer problem is the inadequate instruction given by medical schools in this country on diagnosis and treatment of cancer. I know of but one school where the subject is approached seriously and with an earnest effort to deal with it intelligently. In 1924 it was my privilege to pass upon the examination papers of two hundred and twenty-two prospective internes from forty-eight Class A American medical schools. The question was—"Give the treatment of cancer." The answers, as indices of what is being taught on cancer treatment in this country, were most illuminating in their ambiguity and perplexity, as to what could or should be done. It is practically true that there is no graduate school of medicine that actually, positively and rationally gives instruction in the management of this protean disease. The lack of what I consider to be fully adequate clinical instruction in the treatment of cancer, has become a critical situation in present-day medical teaching. With cynicism rampant and excessive at the fountain head, what else can we hope to find in the profession as a whole?

The third factor in the cancer problem concerns the psychology of the average victim of the disease. This is shown by his usual habit of concealment from every one until one or more of the terminal stages of his disease appear. This hiding of his pathology is sometimes carried to unbelievably mournful, and even fatal, lengths. In some it is so pronounced as to reasonably suggest that, with the development *vari passu* of the hidden malignancy, it does something to alter or upset the normal mental balance of its host.

The fourth problem in the cancer treatment situation is the one of the failure or at least the negligence of physicians and

surgeons to learn the correct application of the methods already at hand for the hopeful treatment of cancer. Another phase of this side of the problem is the misuse, or, equally as bad, the inadequate use, of the various procedures recognized as of value in its treatment.

To the writer, the four factors just enumerated constitute the reason and the explanation of the wellnigh chaotic, confounded and utterly confused cancer treatment situation today. Men, women, and children, the subjects of cancer, have no means of knowing that we have anything to offer them. And, when they do come, the situation is rarely fitly met. The friends are told, by inference at least, that little can be done except, possibly, by the cold knife or x-ray, and the patient, likewise, is too often given some indefinite and unconvincing advice that he instinctively feels means that he is being abundantly, but sympathetically, abandoned to a final exitus, usually by the insufficient and disappointing morphine route. And yet the greatest efforts in constructive cancer propaganda today are being expended to get the cancer individual to come early for treatment, and then we marvel at his failure to do so. "To come early"—but we might inquire parenthetically, "for what?" When the medical profession succeed in educating themselves regarding the possibilities of the most successful management of cancer, the public will soon learn the facts.

The chiefly effective methods at our command for the local eradication of cancer are some form of the actual cautery, the cold steel knife, caustic pastes, and radio-active agents. But rarely is any one, or any combination of these methods, employed in the most effective way possible for the benefit of the cancer afflicted patient.

The statement just made has a very wide application. Some of the best known institutions are doing work that is dreadfully inadequate because they have overlooked, or failed to grasp, important and essential facts in the technic of men who are more than doing "something" of permanent or even of temporary benefit for sufferers. It is also true that in some of the smaller cities there are practitioners who have grasped the essential and distinguishing parts of this better treatment. It follows, necessarily, that they are getting results that will inevitably have to be duplicated everywhere before the present all-but-universally-ineffective treatment of the disease is overcome. I know of no greater need than that a great central institute be established to serve as a teaching center for the scientific determination

of the legitimate boundaries of all methods considered worthy of recognition in the treatment of cancer. Important functions of such a place, aside from the one of ultimately determining by actual experience the most hopeful type of treatment, would be the education on all worth-while cancer facts of both the profession and the public. When both of these great classes know as much about cancer as they do now about appendicitis, medicine, as a profession, will receive the recognition in the former that is now by common consent accorded it in the management of the latter. The older practitioners will well remember the verbal swordplay common in medical societies but a few years back on the question whether a patient with appendicitis should ever be operated. It will readily be seen, then, that we are now repeating with cancer our former experiences in appendicitis, and none of us will doubt, I am sure, that the final outcome will be the same: viz, an enlightened profession and public will co-operate to achieve the best results in cancer treatment. The great desideratum following the treatment of all malignant processes developing in a human being has always been to follow the patient to the termination of his trouble, whether that is health, ultimately, or death. If this could be done, the encouragements that now exist, i.e., that are a matter of record in the experience of not a few surgeons throughout the world, would become a matter of helpful common knowledge and reassurance for further effort.¹

In this day the cancer problem is such a measureless subject that in an address, that very properly must be limited, one cannot hope to touch all of even its highest spots. I have just referred to "Encouragements" in cancer surgery. I should be happy to devote the rest of what I have to say to detailing experiences and relating the histories of patients that would make such a statement convincing and conclusive to the members of this Association. But it will probably render the balance of what I have to say of more immediate practical value if I mention something relative to certain of the underlying principles of cautery surgery in the treatment of cancer. It may, also, not be amiss to state that I have hundreds of patients alive and symptom-free following treatment of their malignant foci with the cautery, from two and one-half to twenty years ago. There is nothing so convincing as cured patients, in any physician's or surgeon's argument with his colleagues on the results of his work, and when the condition under consideration is cancer, it has additional claim on our interest. If what I have just said regarding results in cancer surgery

with the cautery were not susceptible of demonstration on living and well patients, I would not have spent the most active years of my professional life alone in its development. The best statistics so far available in the surgery of cancer with the cautery, are those published by the Doctors Scott², Senior and Junior, of Temple, Texas. It is our misfortune that neither of these master surgeons was able to keep the appointment to make this address, as was planned originally for Dr. Scott, Sr., by the program committee. But the sudden distressing and lamentable illness of Mrs. Scott, as your Secretary has told you, made his appearance here impossible. Had these men not been detained they would have emphasized anew that the most promising and hopeful treatment of cancer is to be found in irradiated heat from the cautery knife.

As a preliminary to sketching how best to destroy an accessible cancer in the human subject, I wish to call your attention to the steadily increasing mention in the literature of the world, which the treatment of cancer by heat is receiving. This has been particularly noticeable in the last year. Another impressive phase of the modern recognition of this ancient method, is the entirely new one of urging that the cautery treatment be applied at once to the very earliest manifestations of the disease.

This is, I repeat, something that has not been done previously in all the centuries of its employment in the treatment of cancer.

If the physicians who first see these patients would thoroughly destroy their growth with a hot iron, the neglected terminal-stage patients whom we so frequently meet, would not come to establish and fix in the public mind their too readily assumed belief that we are helpless in the presence of the patient suffering from this condition. What do I mean by thoroughly destroying cancer? One or the other of two procedures: either the application, directly to the visible growth, of an appropriately sized iron, i. e., one sufficiently large to cover the mass until it is completely and utterly melted out of existence; or, secondly, the finished and wide excision of every vestige of its visible or palpable manifestations with the hot knife. Why physicians and surgeons fail to destroy these small surface accumulations of cells with the cautery, when they first appear, is one of the enigmas of surgical practice. Why they permit them to grow unhindered into the vastly destructive and formidable seeping, bleeding, stinking, and later painful, disheartening and hellish abnormal tissue processes is, again, one of the inexplicable mysteries in the practice of both physicians and surgeons. In all the

glorious realm of medicine and surgery, there is nothing so easy to cure permanently as early cancer, with a suitable degree of heat. If this could be done at once when the disease is first apparent, I repeat, the late cases would be limited almost entirely to internal cancer. If every physician who is consulted regarding its treatment would, in his first attempts with the cautery, limit his efforts to the destruction of the smaller masses, until he becomes familiar with the easily acquired technic of using it in the more advanced cases, he would never think of employing any other method. When he becomes conversant with its correct application, he will naturally enlarge the field for its legitimate employment.

The first requirement in destroying abnormal human tissues is a good cautery. My conception of such an instrument is one that will retain heat in the blade when passing through wet tissues for a considerable distance. The blade must not only feed the tissues the necessary destructive degree of heat continuously and steadily, but it must also be easily controlled. **HEAT IS THE POISON THAT INVARIABLY KILLS CANCER.** It is for this reason that the wire-like cautery blades found in the instrument shops and made from platinum, have but a limited field of usefulness. It is difficult to cut the tissues with this type of cautery without their bleeding and this is always evidence that the essential heat penetration is not being delivered. As a rule, these blades are either too hot or too cold, and, because of this, frequently damage important vessels before the surgeon realizes what has happened. In addition, their great cost is no recompense for their limited service. The equipment necessary to carry on cautery surgery is comparatively inexpensive, and does not require a large preliminary outlay in money.

In attacking surface cancer, it is well to make an outline on the skin with the hot knife preparatory to the excision of the abnormal structures. It is also important to cut the skin from within out. This permits the greater dissemination of heat within the tissues, which is always the essential factor in the destruction of cancer, and, in addition, the undercutting gives a better final union of the skin edges. A mass over one inch in diameter (2.5 cm.) should be cut out with the cautery knife. A smaller area can be melted down with a ball-tipped heating iron. The disadvantage of practising this latter procedure is that no further proof is obtainable as to the microscopic character of the growth. This may later become extremely important. A biopsy, therefore, done with the cautery knife should precede every de-

struction of a malignant mass. Small recurrences, likewise, must be obliterated at once. The patient should be taught to watch for and to recognize these while they are still minor affairs, and to report at once for their immediate eradication. He thus becomes a partner in the saving of his own life. It seems to be a clinical fact that many times this will finally whip out the last vestige of the disease, for the reason that surface cancer in many instances does not metastasize deeply until late.

The practice of asepsis in the cautery removal of a mass of cancer outside the abdomen, is of minor importance. My own view is that suppuration, especially if accompanied by an active degree of fever, plays an important part in inhibiting the redevelopment of cancer, both locally and as a metastatic process.

Prolonged anesthesia with ether or chloroform should be avoided. I believe that many of the comparatively quick returns of cancer in the operated field, especially following cold knife surgery, can be at least partially attributed to some occult influence of these agents on the patient's cancer protective mechanism. I am aware that many believe that no such process accompanies the development of the disease. It is this observed clinical data, however, which has caused me to employ, as frequently as possible, the hyoscine and morphine method of anesthesia combined with a minimum of ether. This latter agent, if required at all, is mainly useful while the cautery knife is incising the skin.

In closing, I want to say a word about cancer mortality following treatment with the cautery. We should always keep in mind that there are two classes of cancer patients. The one comes for treatment early, the other late. In the early case the problem is one only of the most hopeful method for getting the easiest, the best, and the most lasting final good result. We should also recognize that the late case is always and eternally a neglected early one. More than this, every cancer patient, early or late, if not effectively treated, dies a miserable death. In the early cases, a big percentage get well. In the late cases a large percentage die, but not all, and those who do not die, can often get a duration of relief or a form of palliation that is well worth while. To me, to refuse to make anything but a perfunctory attempt to benefit an otherwise terminal cancer patient is unworthy of us. No one has anything to lose, especially the patient. He has everything to gain, for it is impossible to make him worse. Cancer untreated, especially on the surface of the body, always produces a horror that no sur-

geon, no matter what his method, can duplicate. A patient suffering from cancer, submitted to the cautery technic, is never made worse. Cautery surgery leaves the patient practically without further suffering as far as pain is concerned. Cautery-operated surgical patients, including those where there has been an abdominal section, when the technic that I have developed is followed, rarely require any morphine. Cautery surgery is essentially and largely painless surgery, both during and following the operation. Relieved of the necessity for the employment of morphine or other sedative drugs, I rarely see post-operative acidosis following the employment of the cautery, even where there has been extensive dissection of living tissue.

My operative mortality is no greater than it would be in like cases if the cold steel knife were employed in place of the cautery. It is true that the repair of tissues following the application of the cautery is not as rapid as is that after the use of the cold knife. This is more than compensated for, however, by the greatly lessened chance of a subsequent local or distant recurrence.

A further word relative to my operative mortality may be of interest. The very complete records of the Los Angeles General Hospital show that, from June, 1926, to July 1st, 1927, this was $34\frac{5}{8}$ per cent. It should also be noted that this record of operative results is based only on major cases. It is well known that I refuse practically no patient requiring the operative cautery method in advanced cancer. I have always done this, and I see no other way as far as determining final results are concerned in our present unenlightened state of what cancer really is.

My first paper on this disease, published in 1912, was on the "Cautery Treatment of Inoperable Pelvic Cancer." The minute that we begin to try and select and to treat or to operate only those we consider favorable for a given method, and to speciously exclude all the rest as hopeless, or to attempt to salve our consciences by classifying them as for palliation only, we are almost certain to condemn at least 20 per cent of those that we might otherwise benefit, to an unnecessary cancer death.

I have also never included minor degrees of cancer of the lips, ears, nose, eyelids, skin, tongue, and neck in my enumeration of statistical results. Even though these primarily small manifestations of the disease, when disregarded, furnish the major problems that we all see and treat, and of which I have stated I have an operative mortality of $34\frac{5}{8}$ per cent. If I included these earliest and lesser manifestations as

part of my statistics, as is generally done, following the treatment of cancer, they would be boosted so favorably (for these practically all permanently recover) that those reading them would undoubtedly question their accuracy.

Another handicap in the successful cautery treatment of cancer is the almost universal lack of a trained hospital personnel sufficiently experienced to carry out intelligently and skilfully the post-operative care of major surgical patients. For, unfortunately, present-day hospital efficiency does not seem to contemplate effectual oversight of the supersurgical patient. If I could live with my patients, the present unnecessarily high primary mortality could be reduced to where it would easily correspond to that which obtains among skilled general surgeons everywhere. Under present conditions, many valuable lives are needlessly and uselessly sacrificed because, when the patients leave the operating room in good condition, as most of them do, they are immediately turned over to the management of inexperienced, untrained, and unsupervised fledglings in the science and art of medicine and surgery.

If I did not feel that these, at present, unfavorable conditions for the victim of advanced cancer would gradually improve, as a result of the general recognition now being accorded the cancer treatment question, all over the civilized world, I should feel less optimistic regarding our final triumph over this seemingly increasing menace to the race.

Cancer mortality will also be further reduced when every city capable of supporting it will have an institution devoted exclusively to the treatment of cancer. In such an organization men and women can be trained not only to employ, but to observe the final results of, the various hopeful methods that their enthusiastic chiefs believe in and follow. Those thus thoroughly trained would then become available for other institutions in the development of their cancer service along the lines that experience has shown gives the best results. Such an institution could appropriately have an impressive and stately approach and a most noble entrance over which, in letters of living light, should be inscribed for the benefit of the dispirited and disheartened cancer victim:

"He who enters here, gains Hope."

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THEORY, ETIOLOGY, SYMPTOMS AND TREATMENT OF FOOD SENSITIZATION

ORVILLE HARRY BROWN, M. D., Ph. D.

Phoenix, Arizona

(Read before the thirty-seventh Annual Meeting of the Arizona State Medical Association, held at Tucson, April 19-21, 1928.)

The theory I shall advance has helped to clarify, for me, the atmosphere of sensitization phenomena, explained observations on etiology and treatment and caused me to be more confident of my methods of therapy. The observations on etiology have a direct bearing on treatment and on prophylaxis. In presenting symptoms I shall attempt to add a new observation or two and to throw out hints for future investigation. The treatment has helped me to get results in a considerable group of cases which had hitherto been difficult, if not baffling, to me.

For the basis of my theory I give credit to the splendid works of Vaughan (Protein Split Products) and Gurd (Infection, Immunity and Inflammation) and the authors they quote.

My theory is as follows: The protein molecule, whole, or at the end of first stage gastrointestinal digestion for reasons to be discussed later, reaches the lymph, blood and tissues. For the whole protein an enzyme, which we may designate P, is developed to split the molecule to a stage in which a part is toxic; these split products may be the haptophor and toxophor groups of Vaughan or comparable to them. The task which enzyme P has to do is simple and easily performed. The haptophor group is nontoxic and may be ignored.

For splitting the toxic portion (which we may designate the toxophor) to simpler nontoxic compounds, there is developed an enzyme T which has a complex and difficult task. A number of reasons suggest themselves why the task for enzyme T is difficult. It may be that there are two or more molecules of the toxophor group for each molecule of whole protein. This would demand twice, or more, the amount of T to keep pace in its digestion work with that of P. Vaughan has suggested that such is the case. It may be, also, that in addition to this, the task for T for each molecule requires less time than the corresponding task for P requires. Then, too, there is the further possibility that the toxophor group, be-

ing toxins, have an antibody action with enzyme T in which the enzyme and toxin combine. Again the toxophor group, or a comparable stage of partly digested protein, may be absorbed directly from the alimentary tract into the tissues. Enzyme P may be the same for various whole proteins whereas T may have to be specific for each toxophor group. The fact that persons are sensitized to foods which they have never eaten is indicative that P is the same for various whole proteins. Any or all of these possibilities may occur to cause enzyme T to be behind enzyme P in digesting protein which gets into the tissues before being properly prepared for assimilation. There must yet be other explanations as these do not elucidate all of the facts, particularly of pure allergy and anaphylaxis.

I follow Vaughan in using the term sensitization to include both allergy and anaphylaxis. Gurd, wisely, it seems to me, applies allergy to the local reactions and anaphylaxis to the general, both of which appear to be modified quick types of inflammation plus toxin effects.

In the light of the theory advanced, then, the cause of sensitization in a person is the filling up of the tissues with whole and partially-digested protein so that enzyme T gets far behind enzyme P in the destruction of the molecules of protein. It is common observation that the foods to which a person is sensitized are commonly those of which he eats most heartily and frequently.

An inference which naturally follows is that the converse should also be true, to-wit: If the proteins to which a person is sensitized can be kept from reaching the tissues until all proteins and split proteins are completely disposed of and enzyme T is entirely freed from the chemicals it has been concerned with, and the whole or partially digested proteins can be prevented from again reaching the tissues in too great quantities, the sensitization phenomena should be no longer in evidence. In other words, desensitization should have been accomplished. I have proven to my own satisfaction that such actually occurs. Examples of desensitization will be given in the paragraphs discussing treatment.

If, in sensitization, the two enzymes do exist according to the theory and T is overwhelmed so that the split protein molecules supplied by P remain in the tissues to exert their harmful effects, it would seem that P might also be overwhelmed so that the whole protein of the food in question might be introduced into the tissues and not undergo digestion by P with sufficient rapidity to produce allergic reactions. I

have had at least one undoubted example of this. It is not easy to find cases without confusing complications, on which such tests can be conducted. Asthmatics so commonly use adrenalin or ephedrine, which may mask the results of the skin tests. Then, too, it is often not possible in the early stage of the treatment and testing of a case to be sure of a protein with which a person's tissues are surcharged. My one clear-cut example of this phenomenon was a baker who worked intimately with wheat and who ate it freely. He had an extremely severe case of dermatitis. His test for wheat, made when he was first seen, was negative. I felt certain, however, that wheat must be his primary and main sensitizer and at once had it and everything else, except two or three articles which he had not been accustomed to eating and which were undoubtedly negative in the tests, eliminated from his diet. His improvement was promptly evident and with his improvement there was a relative increase in the severity of the reaction of the wheat test on his skin. I have had other cases in which it seemed that enzyme P could have more protein supplied to it than could be promptly digested by it.

If whole proteins are so closely allied chemically that enzyme P for one may split others to the toxophor stage, it would seem that, when enzyme P is developed for one protein, the tissues might be easily stimulated to develop another enzyme P, perhaps closely allied to the first P produced. In this way may we account for the readiness with which many persons develop multiple sensitizations? It is common knowledge that multiple sensitizations are the rule.

Sensitization may exist to foods eaten in relatively small amounts. Pepper, for example, is never eaten in quantities comparable to wheat or eggs or many of the ordinary articles of diet. It may be, too, that enzyme P for pepper is unlike that for any other protein to which the person is sensitized. In such instances the explanation may be that the protein is relatively difficult for alimentary digestion and hence may be predisposed to absorption in whole or a partly digested state. An analysis of my records, I believe, will show a preponderance of food sensitizations to be against those which have a high cellulose content and which are commonly eaten in raw states. Unbroken cellulose material in a food inhibits alimentary digestion and would be expected to predispose to an absorption of proteins, before undergoing complete digestion.

Many factors tend to make inadequate alimentary digestion. Among them may be mentioned: Hurried eating, nervousness,

poor mastication, infection, over eating, hypo- and a-chlorhydria, and perhaps undercooked and poorly prepared foods and inadequate amounts of the digestive ferments.

Hurried eating I believe to be extremely important as a cause of sensitization. I cite an example as follows: A physician who had been subject periodically, for several years, to mild pruritus of his hands and feet after eating cucumbers or pepper but who had never had trouble from milk, though he had used it regularly, drank a glass in as few swallows as possible, with no other food at the time, and within an hour or two developed pruritus of the hands and feet.

Poor mastication is certainly a cause of inadequate digestion. I have had a number of cases who developed asthma or had marked exacerbations after extractions of all of the teeth. Sensitization cases commonly have few or no teeth, missing teeth, inadequate bridges, poorly fitting plates or bridges, faulty occlusion, pyorrhea, tender gums, etc., which admit of but poor mastication.

The evidence that nervousness interferes with digestion is undisputed. Food sensitization cases are prone to be uneasy about eating this or that food or even almost any food and, hence, are not in states to digest foods they may eat. Neither are these people exempt from other forms of nervousness.

Over eating is regarded, by many asthmatics particularly, as an important cause of their dyspnea. They complain of flatulence and stuffiness in both the abdomen and the chest, and are conscious that they digest small or moderate amounts of food much better than large amounts.

Infections, especially colds, have notoriously been predisposing factors in the development of sensitization phenomena. Just the part they play has been questionable except in the minds of those affected. Histories are difficult to interpret on this point. I had one case in whom the evidence and findings were conclusive in showing that infection may be a prominent factor in tending to sensitization. A young man had the influenza during the 1918-19 epidemic. He was seriously ill for several weeks with fever and the usual symptoms. This illness graded into asthma from which he suffered periodically for five years. I found him sensitized to about eight foods and not to bacteria or other proteins. The chief offender was buckwheat. Even the intradermal test for this protein gave him marked lymphangitis, hives and, finally, after twelve hours, violent asthma. He had been accustomed, he then recalled, for a number of years before the influenza attack, to have buckwheat

cakes for breakfast at intervals of perhaps two to three weeks. The conclusion seems warranted that the influenza infection depressed his digestive powers sufficiently to allow the absorption of buckwheat, and other whole or partly digested protein, to such an extent as to overwhelm enzyme for these proteins. I have now had sufficient experiences with the administration of stomach digestants during colds to say that colds do depress the digestive powers and predispose to sensitization phenomena. More will be said of this under treatment.

Hypochlorhydria is a potent cause of inadequate stomach digestion. I have found a considerable percentage of sensitization cases to have hypochlorhydria—in a few cases near achlorhydria—after the Ewald test breakfast. I give credit to Dr. Charles H. Evermann for priority in making a series of fractional stomach tests on asthmatics and calling my attention thereto. Administering hydrochloric acid. I have found, has definite value in a notable percentage of sensitization cases, as will be discussed under treatment. I have no data on reduction of the pepsin of the stomach secretions. I have wondered if the tendency to eat less of the rich protein foods than formerly has any bearing on the etiology of hypochlorhydria, or if cold drinks and foods might be a factor in causing it.

Inadequate pancreatic ferments, in the opinion of Sansum, may cause slow digestion and lead to sensitization. He has treated several cases by giving tablets of pancreatin coated to resist stomach digestion, with good results.

Just what the effect of hyper- or hypomotility of the stomach or intestines might be, or of constipation, is problematical.

The direct etiology of food sensitization, then, apparently lies to a great extent in the causes of inadequate alimentary digestion.

If one sensitization leads to another, then theoretically, and on the basis of Vaughan's work, one might have his first sensitization from pollen, or from bacterial protein, or from animal dermal scales and be predisposed thereby to develop food sensitization just as one food sensitization leads to another. I have the feeling that infection of various types, particularly if chronic, has a definite bearing on the development of sensitization.

The symptoms of sensitization depend upon the organ or tissues affected. The chances are that we are far from recognizing all the variety and number of conditions directly due to foods. Duke has said that fifteen per cent of the population suffer from sensitizations. I suspect that his figures are too

low. The danger of finding sensitization where it does not exist is slight as compared with the danger of overlooking it. If inflammation is really a part of sensitization, as Gurd and Vaughan believe, we must alter our concepts to a considerable extent; on the basis of the theories which I have presented, the change in our concepts will not have to be as radical as would at first be assumed. The food proteins upon the skin often produce marked typical inflammatory changes which may endure for days and the hives preceding the inflammation may be inconsequential. The inflammation following pollen, dermal scales, bacterial vaccines and other protein tests may also be marked. Gurd is of the opinion that the correct vaccine for any given case should be selected according to its skin reaction.

Food sensitizations may be suspected from the statements made by the patients. About as often as not, however, patients fail to blame foods even when foods are definitely at fault. It is well to test for food sensitization, irrespective of the type of the symptoms, whenever the symptoms are out of proportion to the discoverable pathology.

Among the types of sensitization from food which I think I have found, are: asthma, dermatitis, pruritus, hives, pharyngitis, bronchitis, migraine, general nervous system depression, cystitis, flatulence, rheumatism, rhinitis and neuritis. I wish to make the suggestion that neuralgia, perchance trigeminal, psoriasis, certain cases of cardiac irregularities and certain cases of hypertension may be due to food sensitization. William Lintz also has suggested that hypertension may be a sensitization phenomenon.

So far as I know, no one else has suggested that flatulence is the result of food sensitization. The observation would seem to be of great importance, as treatment in line with the theory advanced ordinarily gives brilliant results. Flatulence is a condition of which many cases of one sort or another complain with considerable emphasis. Their common term for it is "gas." I am convinced, from the way the patients complain of it, that at times it must be very annoying. One intelligent patient assured me that she had a great deal of "gas" after almost any food but especially after certain foods. On making the protein skin tests for foods I found that those which she said gave her the most "gas" produced definite and sometimes marked skin reactions. The skin tests made intradermally, even, seemed to cause "gas" in her alimentary canal. It would be expected that the digestants given with the food would be a specific for the flatulence and, in a number of cases, I have found such to be the case.

I have had one case with rheumatic or rheumatoid pains which came from certain foods; at any rate, the withdrawal of the food in question caused a prompt relief of the condition.

In my records are several examples of neuritis thought to be the result of sensitization. These cases have not responded to the usual treatment of withdrawal, as have other cases of sensitization phenomena, and suspicion exists in my mind that I may be wrongly interpreting the cause of the neuritis, at least in instances. I have had one case simulating trigeminal neuralgia and migraine which had strong indications of being a sensitization phenomenon. The administration of digestants has brought about definite improvement in the case.

I have reported elsewhere one bladder sensitization to food which was cured by withdrawal of the offending foods. I have had two other cases which apparently belonged in the same class but about which there remains doubt.

I have had several cases who have had stuporous attacks associated with asthma, which undoubtedly came from foods.

At least two cases with cardiac irregularities were believed to come from sensitization—to food proteins in one case and to bacterial proteins in the other.

Dermatitis and hives are well recognized as sensitization phenomena. Pruritus is perhaps not so well established as from the same cause. I have seen a number of cases in which pruritus was definitely the result of eating certain foods. In several instances the pruritus preceded inflammation of the skin.

Pharyngitis as the result of food sensitization, it would seem, should be no novelty. I found one extremely severe case in which the cough was maddening and everything but adrenalin or ephedrine had been tried for months with absolutely no relief. After one dose of adrenalin followed up with ephedrine and a digestant mixture there was no more coughing. I have thought, since, of numerous cases which I have treated in the past which might have been analogous to this.

Bronchitis without asthma, or even dyspnea, should be fairly common. Whenever there are bronchitis findings, sensitization to foods should be held in mind.

Rhinitis, especially of the vasomotor type, is most commonly due to pollen. It must not be forgotten that it may be due purely to food and also that hay-fever can be complicated with food sensitization rhinitis. I have found that a surprisingly large number of hay-fever patients are benefited by administration of a digestant mixture with

meals. The thought has come to me, too, that perchance a part of the pollen which causes hay-fever reaches the system by way of the gastrointestinal tract.

At least four cases of psoriasis have been encountered in definitely food-sensitization cases. In one case, spots of psoriasis appeared at the sites of a number of the intradermal tests for the foods.

Hypertension has been met with, by me, in a number of sensitization cases and the suggestion is offered that sensitization may play a part, at least, in its etiology. It seems rational that the blood vessels might be narrowed by changes in their walls analogous to those changes in the bronchi in asthma. While treatment in a limited number of cases has, so far, been encouraging, I can add nothing more.

The diagnosis of food sensitizations, particularly of severe types, in the light of the theory I advance, should be as thorough as is possible. The intradermal method, being the more delicate, is the method of choice. The reading of the reactions should be close and include the hives and the subsequent inflammatory areas for as long as they endure. I measure and record them in millimeters. Any reaction above ten millimeters calls for an elimination of the food causing it, from the diet, until later tests for that food are negative. Whether the aids to digestion will allow the mildly reacting foods to be continued in the diet and yet have desensitization of those foods to result, is a question which I have not answered. Theoretically such should be the case.

It must be kept in mind that foods which produce sensitization phenomena may not give positive reactions even when the tests are applied intradermally. In such instances, the food addition method, which I reported at the San Francisco meeting of this society, may be of assistance in locating the offenders. This method consists in having a limited number of foods in the diet for a time and observing their effects. Changes in the diet are made until a diet is found which causes little or no trouble; then one food at a time is added and its effect is observed. It is necessary to remember that foods have delayed reactions and may not produce untoward results for hours after being eaten.

In mild sensitizations it may not be necessary to make the skin tests. Administration of the digestant may suffice, after a short time, in effecting a cure, especially if the digestant is continued for a considerable period.

The treatment of sensitization cases should aim at ultimate complete desensitization. The first object should be to make the patient reasonably comfortable so that

the investigations that are indicated may be made with deliberation under as few confusing conditions as possible. It may or may not be feasible to make early tests of the patient's stomach digestion. In the aged and in young children it is usually advisable to empirically supply digestants unless there are definite contraindications. In those who are tested and found to have hypochlorhydria the hydrochloric acid alone, or in combination with pepsin and perhaps with calcium iodide, should be given. The prescription which I have been using is as follows: Calcium iodide, four drams; dilute hydrochloric acid, four ounces; and quantity sufficient of elixir lactated pepsin to make eight ounces. I am not satisfied of the advantage of either the pepsin or the calcium iodide in the digestant mixture. In a group of cases, I have used the hydrochloric acid by itself and am not sure but what the results are equally as good as where pepsin and calcium iodide are used with the hydrochloric acid. In other instances, I have combined small amounts of ephedrine with the hydrochloric acid. In still other cases, I have used the ephedrine only as indicated by the symptoms and the dilute hydrochloric acid with meals, and am inclined to think this is the preferable procedure. The calcium was added to the mixture because Lintz has claimed such splendid results with it and, further, because calcium has been almost universally advised in these conditions.

When results are not obtained by means of the digestant, the skin tests must be made and all reactors, or at least the severe ones, eliminated from the diet. It goes without saying that it may be necessary to ascertain if there are sensitizations to pollen, dermal, bacterial or other proteins, which may have to be taken into consideration.

My idea that digestants might be of value in the treatment of sensitization phenomena dates back a number of years, but did not crystallize into application until I met a man, about eighteen months ago, who told me that he always carried a vial of hydrochloric acid and pepsin in his pocket to use whenever he unwittingly ate egg. Asthma resulted, in him, from egg unless he also took the digestant. A chemist for a mine in Cripple Creek had given him the mixture formula which he found worked successfully.

The first case treated by me with the administration of hydrochloric acid and pepsin was a child who had extremely severe asthma which I suspected, from the history, of coming from food. This case is an example of the empirical use of the digestant. The child was about six—too young for

stomach testing with the Ewald breakfast. Within about a week the child was entirely free of signs of asthma; then one evening the mother gave the child a bread and milk supper with strawberry jam, giving also, she said, the digestant mixture. Before morning the child was in a frightfully severe attack of asthma. The mother was then instructed to keep the child on the general diet she had been using and the digestant, and to bring the child to the office as soon as he was over all signs of asthma. Three tests for milk, six for wheat and one for strawberry were applied. All the milk, and all the wheat tests, reacted severely. The strawberry was negative. The conclusion seemed warranted that the child's natural digestive powers were inadequate to digest the bread and milk and possibly other offending foods in the amounts ordinarily present in his general diet. Even with the aid of the hydrochloric acid and pepsin he was unable to digest a full meal of bread and milk so that the whole or partially split protein would not reach the tissues. Other cases might be presented to substantiate this conclusion.

The sensitizations of children are likely to be from food and they often do well on the digestant mixture without its being necessary to make the skin tests. It is often advisable to eliminate from the diet, for a time, those foods which the histories of the cases disclose are probably the offending foods. The foods which the children like the best and eat in greatest quantities are the probable causes of the sensitizations. This fits in with my theory and seems to work out practically.

Certain persons have asthma only when they have colds. In these cases the digestant may need to be given only during the period of the colds. I believe, however, that it is wise to keep up the mixture in the interims, at least for a while. I have found that, even in the periods when there seem to be no signs of asthma, careful examination, especially with a number of forceful exhalations, will disclose mild asthmatic rales. The conclusion is obvious that there are slight results of sensitization even without the presence of colds. My interpretation of such cases is that the colds depress the, at best, poor digestive processes to a point which admits of whole or partially digested protein reaching the mucous membrane for absorption in amounts to cause a "blow-up."

I have had one case who had normal amounts of hydrochloric acid with the Ewald breakfast and whose asthma was cured by administration of the digestant, without eliminating the offending foods from his diet. Such instances are rare for

the reason that most food sensitization cases have hypochlorhydria.

Flatulence, milk dermatitis, hives, pruritus and other mild food sensitizations, usually respond with reasonable promptness, according to my experience, to an administration for a short time of the digestants. My experience with the unusual types of food sensitizations is as yet too meagre to warrant any statement as to the influence of the administration of digestants upon them.

Sensitization cases should all be instructed to have as varied a diet as possible, to eat slowly, to masticate every bite thoroughly and to keep in a cheerful frame of mind, especially when eating, to have regular stated hours for meals and to have all infectious processes treated seriously in the incipency. The dentist should be called upon to make thorough mastication possible. The entire family of each case should be instructed by the physician to lend support to the program for the patient. This paragraph also applies to prophylaxis of sensitizations.

The suggestion also arises that digestants might be given in cases of infectious processes for I have had enough results now to make me certain that desensitization results in cases where all offending foods are eliminated from the diet sufficient lengths of time. In hives and mild early sensitizations, a week to ten days of strict elimination may suffice to allow the patient to return to a regular diet with safety. The chances are, in my opinion, that desensitization is usually not complete in this time. In the severe cases desensitization may require months of elimination of all offending foods. Skin tests have proven to me that desensitization does result, much as would be expected from a study of the theory presented.

SUMMARY

A theory is advanced to the effect that there are two enzymes developed when whole protein reaches the tissues; P splits the whole protein to the haptophor and toxophor, or comparable, stages and T splits the toxophor portions of the molecule. If the toxophor group is not destroyed as rapidly as it is formed, sensitization phenomena are produced which may be typically allergic, anaphylactic or inflammatory. The task for enzyme P is simple, whereas that for T is difficult. A number of reasons are advanced to explain why the task for enzyme T may be harder than that for P.

Evidence is presented that bacterial inflammation may be responsible for the development of food sensitizations. One sensitization leads to another so that multiple sensitization is the rule. An important

cause of food sensitization is inadequate digestion in the stomach and, possibly, in the upper intestinal tract.

Among the phenomena which may result from food sensitization are: asthma, dermatitis, pruritus, hives, pharyngitis, hay-fever, flatulence, cystitis, rheumatism, neuritis, migraine, neuralgia, general nervous system depression and, possibly, psoriasis, cardiac irregularities and hypertension.

Treatment by giving a digestant produces splendid results, especially in the mild and early cases of food sensitization. In serious cases and those which do not respond to the digestant, careful testing by the intradermal method, one food protein at a time, of all possible offenders should be done and all marked reactors, at least, eliminated.

Desensitization results, at least in portion, of the cases when all offenders are eliminated a sufficient length of time. On the basis of the theory presented, desensitization should result in all cases if the elimination is thorough and protracted enough. In mild cases a few days or a few weeks of elimination of the offenders will suffice, but in aggravated cases the elimination may have to be for months or even longer. The prescription which I have used, in the main, as a digestant consists of four drams of calcium iodide, four drams of dilute hydrochloric acid and enough elixir lactated pepsin to make eight ounces. For a full meal two drams are advised, taken in a full glass of water or fruit ade sipped slowly with the food. A smaller meal may have proportionately less of the digestant mixture.

The diet should be as varied as possible. Over-eating, especially of any one food, is to be avoided. Thorough mastication, slow eating and best possible mental state are extremely important.

It is an excess of protein in blood and tissues which leads to sensitization; hence, avoiding excess of any article is the best prophylaxis.

INJURIES TO ABDOMINAL VISCERA

HILARY D. KETCHERSIDE, M. D.

Yuma, Arizona.

(Read before the Thirty-seventh Annual Meeting of the Arizona State Medical Association, held at Tucson, Arizona, April 19 to 21, 1928.)

I shall limit the scope of this paper to injuries without external wound. In studying this type of injury, I was greatly impressed with the difficulty in making a proper diagnosis, and, in view of the increasing frequency of these injuries and the importance of an early diagnosis, I felt a review of the subject might be of value.

These injuries are usually produced by

blows upon the abdomen, and the small amount of force required to produce severe injury is sometimes surprising. On the other hand, I have seen cases where the wheel of an automobile passed directly across the abdomen without producing internal injury. The condition of the abdominal muscles, whether relaxed or contracted, and the condition of the stomach and bladder, whether filled or empty, seems to make a very great difference.

SIGNS AND SYMPTOMS

While there is apparently a definite train of symptoms, it is often extremely difficult, if not impossible, to differentiate a simple contusion of the abdominal wall from severe internal injury, as the same symptoms may be present in either condition.

Shock to some extent is present in all cases but may be slight or of only short duration and may also be present in simple contusions, so is not a very reliable sign unless persistent.

Pain, if persistent or localized, is a valuable sign, especially if it is increased by motion, pressure or deep breathing.

Rigidity is the most reliable of all signs and, if persistent or progressive, is almost pathognomonic.

Hemorrhage is indicated by pallor, thirst, rapid pulse and lowered blood pressure, but even in severe injuries there may not be sufficient hemorrhage to produce these signs.

Blood in vomitus, stools, or urine is a valuable sign when present.

The other signs, such as tympanitis, obliteration of liver dulness and respiratory changes, are of little value.

Unless there are signs of hemorrhage or blood in vomitus, stools, or urine, it is usually necessary to keep the patient under observation for a few hours.

TREATMENT

The mortality rate is higher than in injury from penetrating wounds, which is explained only by a lack of early diagnosis or a tendency to follow the expectant treatment too long. Early exploratory laparotomy is the only sane treatment. Early operation does not mean immediate operation in all cases. Often a delay of five or six hours is advisable. If a patient is in shock, a little time to rally will improve his chances and a patient who will not react from the shock of his original injury will certainly not withstand the additional shock of operation.

I believe that, for a few hours following visceral injury, peristalsis is stopped and that, even though a hollow viscus has perforated, there is very little additional soiling during the first few hours; therefore, a delay of three or four hours may improve the chances of recovery.

CASES

Elizabeth, five years old, was struck by fender of a slowly moving automobile. She showed no external signs of injury and parents insisted "she just had her breath knocked out." She was pale, and had increased thirst, rapid pulse, and was cold. We delayed operation about six hours. On opening the abdomen we found it filled with blood. The spleen was ruptured, torn from its pedicle, and floating free in the abdomen. The liver was ruptured. There was an hematoma in stomach wall and blood in intestines. She had made an uneventful recovery and was discharged from hospital in twenty-one days.

Jose, five years old, was run over by automobile, the wheel passing directly across his abdomen. The skin on the abdomen showed red mark of the tire tread. He showed slight shock and his abdomen was rigid and tender. We decided to delay operation a few hours. In a few hours the tenderness, rigidity and shock had so completely subsided that operation was never done. He was discharged on the third day.

DISCUSSION

DR. H. T. SOUTHWORTH, Prescott, Ariz., (opening): I can recall three cases of the class spoken of. The first was a man who was kicked in the abdomen by a mule. He had absolutely no mark on the skin, no redness whatever, and I think the fact he did not have some such sign is the chief reason he died from peritonitis. This patient argued like a lot of people who believe that if you can move the fingers there is no fracture of the arms; he said that there was no internal injury because there was no mark on the skin and the consultant agreed with the patient and asked for more time, and during that time he developed peritonitis.

The second case was a man who had a dump wagon run over him. He had absolutely no mark but was operated, ruptured viscus found, and he recovered very promptly.

The third case was a fairly recent one, in which I was consultant. A man was opening a gate which closed by weight and chain. When the gate swung shut, the man got his foot caught in the chain and fell over the stake to which chain was attached. He first fainted and then had acute pain; was taken into the house and vomited, but did not call the physician for about ten hours. The man lived thirty miles out and by the time he came in, he was in bad shape. He died. There was no mark on the abdomen.

In each of these cases, some viscus was ruptured. The disappointing features that Dr. Ketcherside mentioned were present. When you have these cases, you should decide that it is a surgical belly without trying to decide whether it is liver, spleen, or some hollow viscus, proceed to get in, repair the damage and get out.

DR. V. A. SMELKER, Nogales, Ariz.: I have seen a few of these cases. In the case of one man who was injured in an auto wreck, I was called in consultation on the second day. Man was passing blood and there was a large hematoma or swelling over the area of the left kidney. X-ray showed three ribs broken on the left side, but there were no external injuries. We concluded the left kidney should be removed and did remove it; the kidney was badly lacerated and patient was very weak, but rallied. Blood continued to come from the bladder and on the fifth day after operation patient died of uremia. No doubt, there was a double subcutaneous rupture of both kidneys. This case should demonstrate that kidney diagnosis is never accurate without definite kidney study. However, in this case we did not suspect anything wrong with the right kidney; there was no tenderness or swelling on that side and the blow was on the left side. The right kidney area showed no traumatism

whatever and the patient never complained of the right side.

The second case was that of a little boy who was kicked by a horse. We made a diagnosis of internal hemorrhage. The left flank was filled with fluid and we opened there. The spleen showed numerous shallow lacerations. The hemorrhage had stopped and we proceeded contrary to the usual surgical procedure, which would have been to remove the spleen. We left the spleen in and packed thoroughly, leaving the pack in for eight days, and the boy recovered.

The third case is the only case I have ever had with ruptured pancreas. A man was held up by bandits in Mexico three weeks before, and beaten. Had a large tumor in the upper abdomen, chiefly fluid, about the size of a large grape fruit. There was no free fluid in the abdomen; stomach was pushed forward with tumor mass behind it. We opened the peritoneal cavity and found a large amount of brownish bloody fluid and, on lifting the transverse colon, we could see, through the posterior peritoneum, hemorrhagic areas over the pancreas. We opened the cavity and the man recovered.

With regard to the kidney case, both Dr. Bliss, who assisted me in that case, and I looked through all our available literature, and did not find reported any case of double kidney rupture.

DR. J. M. GREER, Phoenix, Ariz.: This paper of Dr. Ketcherside's is very timely. The things that can happen in the abdomen without external injury are certainly very interesting. Without opportunity to refer to case histories, I can recall three instances of such injuries.

One was an auto accident in which a man, weighing about two hundred pounds, going very slowly, turned over on a soft shoulder of dirt; he tried to jump out and bent over the door, which did not come open. He entered the hospital in great shock. On opening the abdominal cavity, we found a rupture of the transverse colon clear into the mesentery, without a sign of external injury.

The second case was that of a young man who was hit by a discus in a field meet. There was no evidence of external injury, but he grew gradually worse and died. On autopsy, the liver was found to be ruptured.

The third case was that of a mine worker who was struck over the abdomen. He had a rigid abdomen and we recommended operation, which was refused. He left the hospital and, about five days later, developed general peritonitis and died, as told me by another practitioner.

If we can ever get Dr. Sweek's abdominoscope perfected so that we can look in and see what is going on, it will be a great help.

DR. W. O. SWEET, Phoenix, Ariz.: I have one of these cases. He was a Jap, 35 years old, who was riding a bicycle along the street when he was struck head-on by an auto. The tibia and fibula of each leg were broken and he was struck by the auto lamp over the abdomen. He was taken to the hospital by the man who hit him. The patient did not make much complaint about the belly, though there was rigidity, and I wanted to open the abdomen and see what was wrong. As I was young and inexperienced, the man who struck him wanted his own doctor and would not allow the operation. We waited twenty-four hours and by this time general peritonitis was evident. A midline incision was made and several perforations of the small bowel were found. Much feces was washed out and strip rubber put in as drains. However, the man died.

With regard to Dr. Greer's remark about the abdominoscope. I have had two patients who I thought might have something in the belly, and I

poked the abdominoscope in and tried to find something; I did not find anything, but will keep on poking it in. It does not do the patient damage and is useful in such conditions as tubal pregnancy and such injuries as these.

DR. J. A. KETCHERSIDE, Yuma (closing): When I spoke of delay, I did not mean twenty-four or thirty-six hours. If it is obvious that a man is injured inside, there is no need for any delay, unless he is in shock. I believe the majority of such cases are borderline, and we do not know whether they have internal injury or not; fully fifty per cent turn out not to have. I had a man, just before leaving home, with every symptom of internal injury along with broken ribs; abdomen was rigid, etc. After a few hours it all cleared up and proved to be irritation from the broken ribs. We see a lot of cases who have rigidity for a few hours. I just wanted to know how to diagnose these cases without waiting, but no one has told me how to do it.

SOME REMARKS ON FRACTURES

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Phoenix, Arizona

(Read before the thirty-seventh Annual Meeting of the Arizona State Medical Association, at Tucson, Arizona, April 19 to 21, 1928.)

In presenting this paper I do not claim anything original. I do not expect to convey any great or special message on the subject. If this paper will stimulate more interest in the subject of fractures; if it will stimulate some discussion on the subject of fractures—particularly along the line of the period of disability of individuals who have sustained fractures—if it will stimulate the members of our profession within my hearing to more careful thinking on the subject of fractures, I shall consider that my efforts in presenting this paper will have been worth while.

As Dr. Scudder of Boston said, before the section of Orthopedic Surgery of the American Association, at Washington, D. C., 1927: "The treatment of fractures is today the most important subject in surgery, without any exception. It is important for three reasons:

"1. The severity of the injury to the whole individual in a case of fracture.

"2. The need for developing a sane judgment and deciding at the outset on a line of treatment suitable to each case and the treatment to be carried through to the conclusion of the case.

"3. The generally unsatisfactory ideas of treatment prevalent throughout our profession.

"The loss to industry alone from poorly treated and maltreated fractures is estimated at millions of dollars annually."

As you all know, it is generally thought, among surgeons, that the treatment of fracture is very unsatisfactory and many surgeons would rather not treat them at all.

They just treat them because they cannot very well avoid doing so.

About 1922, a representative group of surgeons tried to prepare an outline with the aim of simplifying and standardizing the treatment of the more common fractures. This has been adopted by the American Surgical Association. It might be well for us to consider briefly this outline:

I. First-aid treatment. Avoid causing any additional injury.

1. "Splint 'em where they lie."
2. Avoid any unnecessary manipulation.
3. Transport with extreme care.
4. Treat any existing shock.

II. Examination. As complete and thorough an examination as possible, without causing any additional injury, should be made.

1. Begin with painless procedures.
2. Search for crepitus and abnormal mobility only when these symptoms are absolutely essential. The manipulation required to solicit them causes additional injuries.
3. Rule out, if possible, other associated injuries, especially of nerves.
4. Elicit objective symptoms, which will be painful, only under anesthesia.

5. Roentgen-ray examination should be made as early as possible. Roentgenograms should be taken in two planes, stereoscopic when necessary; they should be of sufficient size to cover the injured area and should be studied with extreme care.

III. Diagnosis. The simple diagnosis that a fracture exists is not sufficient. All details of pathology of the soft parts, as well as of the bone, should be considered, so as to visualize properly the problem of obtaining and maintaining reduction, as well as the problem of repair and its probable duration.

IV. Treatment. Each fracture should be considered an individual problem, and the treatment should be directed upon, not only the injury to the bone, but that of the soft parts, as well. The pathological changes following a fracture interfere markedly with the ease of reduction of displaced fragments, and, of course, influence the period of disability. These changes begin very soon after injury. Infiltration of the adjacent soft parts, coagulation and later organization of the blood clots, are the most important.

OBTAINING REDUCTION

Reduction of any existing displacement should be made as soon after the injury as possible. Do not wait until the "swelling goes down," as was the custom of many surgeons not so long ago. Do not even wait too long for x-ray examination.

Reduction should be as gentle as possible, and as complete as the individual case re-

quires. It may be controlled by fluoroscopic examination in appropriate cases, and should be checked by roentgen-ray examination as soon as practical. Manipulation should be carried out under an anesthetic, with but few exceptions. If complete or satisfactory reduction is not attained at the first attempt, further attempts at reduction should be made as soon as the need is recognized.

MAINTAINING REDUCTION

Decide in each case the peculiar problem presented in that particular case. Select the apparatus according to the case. Develop an idea of the apparatus that is needed for immediate use and that will be needed for subsequent use. A decision will have to be made as to how early such apparatus can be temporarily discarded to allow for massage and motion, and how long it should be worn in order to protect against further injury. Remember that repair in cancellous bone is more rapid than in cortical bone.

Also remember that rapidity of repair will depend very largely on the blood supply of the fragments. Remember that there is such a thing as atrophy of disuse, in bone as well as muscle. The inherent value of any apparatus is of less importance than the skill with which it is used. It is not so important to use good apparatus, although that is important, but rather to use the apparatus that is at hand with the utmost skill.

Circular plaster bandages are permissible only when completely divided in at least one line.

MASSAGE AND MOVEMENT

If carefully and gently carried out, massage and movement can be of the greatest help. They can also cause much harm. Differentiation must be made between the various movements of massage and movement. In massage there may be:

- a. Gentle stroking without deep pressure.
 - b. Stroking with deep pressure.
 - c. Kneading.
- and in movement:
- a. Guided active motion.
 - b. Unaided active motion.
 - c. Passive motion.

With these various forms kept in mind they may be begun as soon as there is not danger of any additional injury or any displacement of the fragments. Gentle massage and movements may cause discomfort but should never cause actual pain. Forced passive movements usually means harmful stretching or tearing of soft parts and makes additional repair necessary.

THE USE OF THE X-RAY

It is wise to examine all injuries, and especially those that are near or involve a

joint, with the x-ray, as many fractures have been overlooked.

Two views at 90 degrees or stereoscopic x-rays, should be made.

Care should be taken in placing the patient to avoid distortion, which might not only exaggerate a slight displacement but might minimize, in appearance, a marked displacement, which would be worse. Utmost care must be taken in removing dressings, as many times it is necessary to remove dressings in order to get an accurate diagnosis. The surgeon should remember that the x-ray man does not like to do this and, if the case is one in which there is the least danger of displacement, the surgeon should accompany the case to the x-ray department. Of course, opaque metal splints are not used any more.

It is well to radiograph before and after reduction of fractures, but, by all means, take roentgenograms afterwards and preserve them. These are many times very valuable in case of subsequent disability, which may be laved to improper treatment. Roentgenograms may clearly show that the result is the best obtainable under the circumstances. The fluoroscope should never be depended upon for the primary diagnosis of fracture, especially in the region of a joint. Always make a roentgenogram for study and record.

Fluoroscopic reduction should never be made a routine procedure, because of the dangers entailed. Dr. William Bowman, radiologist, of Los Angeles, does not believe in it at all because of the dangers. He always makes films and develops them quickly, while the patient is still in the room, and then better reduction may be attempted if indicated. There are many instances, however, in which fluoroscopic reduction seems indispensable.

Prognosis may be indicated, in some instances, from the x-ray, as, in the neck of the femur, from comminution or from inability to coapt the ends of the fragments properly or satisfactorily. The progress of healing or union can be watched, and the x-ray shows when complete union has taken place.

OPERATIVE TREATMENT

Operative treatment is indicated when a satisfactory reduction cannot be obtained and maintained by non-operative methods.

It has been held by some, and especially by insurance companies, that operative treatment materially complicates the case and prolongs the disability. This is probably not true, aside from the psychological side, as a fracture in which operation is indicated is one in which the disability would be prolonged, or perhaps permanent, with-

out operation. And disability would be shortened, and perhaps permanent deformity and disability prevented or minimized, with operation.

In other words, one cannot speak in general terms and say one does not believe in the operative treatment of fractures. The problem has to be worked out for the individual case. Some cases, we know from experience, are best treated by operation, and other cases may be treated equally well by the operative or closed method, depending somewhat upon the surgeon in charge of the case. Many times it takes more skill to successfully treat a fracture by the closed method than by operation.

I believe there is a tendency to operate less now than a few years ago. With the development of more efficient apparatus and the stocking of better equipment in the hospitals, cases that formerly were thought operative are now successfully treated by the closed method.

Some very excellent surgeons almost have a rule to make an earnest attempt to treat all fractures by the closed method. This includes several attempts at reduction before they will consider the open method. They try to keep themselves in the mental attitude that, if they cannot treat the case successfully by the closed method, they have failed and they must resort to operation to bring them out of their failure.

It would seem that this is going a little too far and that a more middle ground should be taken. For we know, from the first, that there are fractures which can be treated better by operation. No less an authority than Scudder of Boston states and teaches that the operative treatment of fractures has a very definite place in surgery. However, Scudder lays down some very definite requirements for surgeons and hospitals before attempting the operative treatment of fractures.

Internal Splinting. In the operative treatment of fractures it is not always necessary to use foreign material for internal splints. Many times open reduction is all that is necessary and then proper retentive apparatus. The tendency is to use absorbable material, rather than metal. M. S. Henderson, of the Mayo Clinic, and William L. Bell, of Oakland, both use absorbable material, as do many other good surgeons. Beef bone screws and plates are becoming more favored.

PROGNOSIS

This is a very difficult thing to determine, and, except in a very general way, usually cannot be determined at the time of injury. For example, we might say that the period of disability in a fracture of the

radius is four to six weeks. This would probably be true in many cases of fracture of the radius; yet this would be modified by (1) the type of fracture, (2) the success in reduction of the fracture, (3) the associated injury of the soft parts, (4) the general condition of the patient, and, (5) the ability of the patient to throw out callus. As has been said previously, the x-ray is a help in determining the amount and the character of the callus.

The disability from a fracture of the neck of the femur might be variously estimated at from six to nine months. This prognosis is only general, and should be checked up from time to time during this period by x-ray examination. It is very necessary, from the standpoint of insurance companies and industrial commissions, to determine as accurately as possible these periods of disability. If any table could be compiled that would be at all accurate, it would be a great help. From the standpoint of the insurance company, it is better to over-estimate rather than underestimate the period of disability. It should be the rule of every surgeon to make as accurate an estimate as possible, at the time of injury, of every fracture coming on his service, rather leaning to over-estimate than to under-estimate it.

Subsequent reports of the case should be made at periods of two weeks, and, as time goes on, and with sufficient experience, it will be possible to more accurately estimate the period of disability in fractures.

FRACTURES OF THE FEMUR WITH CASE REPORT

HAL W. RICE, M. D.

Morenci, Ariz.

(Read before the thirty-second Annual Meeting of the Arizona State Medical Association, at Tucson, Arizona, April 19 to 21, 1928.)

In this industrial age more attention than ever before is being given to the time lost from work because of accidental injury. From this standpoint there is no group of fractures as important as those of the femur. According to the report of the British and American Fractures Committees' the average time lost in simple fracture of the femur (all sites) was 7½ months; of the leg (all sites) was 4¾ months; of the head and neck of the humerus, 2¼ months.

The discrepancy in compound fracture is greater still, as follows: compound fracture of the femur, 13 months; of the leg, 6 months; of the upper extremity, 4 months.

The obvious reasons for a comparatively long disability period in femur fractures are that it is the largest bone in the body and consequently requires a greater and longer bodily effort at repair, and also it affords

attachment to the strongest and heaviest of skeletal muscles and fascial planes, which accounts for a fracture deformity particularly hard to overcome.

Fractures of the femur are classified, according to location, into three groups: (1) those of the upper end, (2) of the shaft, and (3) of the lower end. Upper end fractures are generally of the neck, fractures of the head or great trochanter alone being very uncommon. But breaks of the neck of the femur are not unusual, comprising about one-third of all fractures in the aged (past 70), and are classified into two main groups, viz., through the neck, or intracapsular, and at the base of the neck, or extracapsular. Formerly it was considered important to diagnose whether the line of the fracture was intra- or extracapsular, but it is now recognized that the real determining factor, from the clinical standpoint, is the existence or nonexistence of impaction. Of the two classes of neck fracture, the intracapsular is the more serious, since impaction in these is less common; and also the periosteum of the neck is generally badly torn by the fracture, the blood supply of the femoral head thereby greatly impaired and the callus output from that fragment is consequently slight. Breaks of the shaft occur about three times as often in the middle third as in the upper or lower thirds. Fracture of the lower end, i. e., of the condyles or between them, is rather unusual.

Diagnosis of fractured femur can frequently be made by inspection alone; the disability of the lower extremity is so complete, the deformity marked and shortening is readily determined. Characterizing upper end fracture is elevation of the great trochanter above Nelaton's line, with shortening of the limb corresponding to the amount of upward displacement of the lower fragment. The position of the entire limb is typically eversion because of the unrestricted action of the rotator muscles attached to the great trochanter. Great care should be exercised in examining upper end fractures on account of the possibility of separating an existing impaction but, if shortening is marked, it is highly improbable that impaction will be found.

Both shortening and deformity are most noticeable when the shaft is broken. Abnormal mobility and crepitus are also more easily demonstrated than in fracture at either end. When the upper third of the shaft is the seat of the injury the short upper fragment, as a rule, is considerably displaced, being flexed forward and abducted with rotation. In the lower third the strong pull of the gastrocnemius, attached to the pos-

terior aspect of external condyle and shaft, causes a sharp backward displacement of the lower fragment which not uncommonly presses dangerously upon the nerves and bloodvessels of the popliteal space. This must be remembered and an examination immediately made to determine the condition of the circulation below the knee.

In condylar and intercondylar fracture, there is generally marked effusion into the knee joint, causing diagnosis in this location to become very difficult without aid of roentgenograms.

Let me but touch upon a few salient points of treatment: The element of shock, the possibility of impaction and the danger of injury to important surrounding structures, make first aid treatment in femur fractures of paramount importance. Complete immobilization should be secured before any attempt at moving the patient is made. The Thomas splint is the ideal first-aid for dressing, for, by means of it, a certain amount of traction can be begun at once. After the patient reaches the hospital, during the course of x-ray and other examination, an assistant should be given the responsibility of maintaining extension by holding the limb constantly with gentle traction until the examination is completed and permanent treatment instituted. Thus not only are shock and suffering reduced but deformity due to muscle spasm and fascial retraction, is minimized from the beginning.

In hip fracture with satisfactory impaction, immobilization in the plaster spica with the extremity in moderate abduction is all that may be indicated. Twenty years ago Cotton introduced his method of converting the unimpacted neck fracture into the impacted type. He recently² reports continued success of this method but stresses the point that he thereby is making only "an initial fixation which corresponds to the more favorable type of accidental impaction. One must fix the limb in the spica just the same as in the rare case of satisfactory accidental impaction." Artificial impaction, doubtless, is ideal treatment in experienced hands; it has also a certain application in old as well as recent cases. But the method first demonstrated by Royal Whitman, in 1904, is the treatment most generally employed in recent unimpacted fracture of the neck. As to the usefulness of the Whitman method, F. Jones³ finds that a favorable prognosis can be given in 75 per cent of cases so treated and Meyerding, speaking for the Mayo clinic, reports satisfactory results in twenty-seven of twenty-nine recent fractures of the femoral neck.

In fractures of the shaft, the great problem is to combat the deformity, for in no

other situation is displacement so liable to be marked or difficult to overcome. Scudder particularly calls attention to the active part played by retraction of the great fascial planes of the thigh (the strongest in the body) in increasing deformity when the bone is broken and in maintaining reduction when the bone is restored to its natural position. "Moreover," he states, "it is a fact that delay in setting the fractured bone is attended by increasing difficulties of reduction, largely because the fasciae become stiff, filled with round-cell infiltration. As time elapses these planes of fasciae can with greater and greater difficulty be stretched to their normal length."

Therefore the proposition of reduction of shaft fractures is mainly one of extension and counterextension, to overcome the adverse pull of muscles and fasciae, and the earlier it is begun the greater the chance of success. One common cause of failure is the use of too little weight. Unless extension is applied within the first hours of the injury, the average adult femur will require from thirty to forty pounds of skin traction for two or three days, or approximately one-half that amount by the skeletal method. As the fragments line up, weight may be gradually diminished. Suspension of the limb is a great aid towards the attainment of good alignment, especially in fracture of the lower or upper thirds of the shaft. The position of abduction so essential in upper third breaks, and the flexion of hip and knee, in addition to traction, in the lower third, are best obtained by suspending the limb from a Balkan frame, using the Thomas or Hodgkins splint for immobilization. Fracture of the middle third is, as a rule, more amenable to reduction by traction and it is here that the old Buck's extension is particularly applicable.

Operative treatment is indicated in all instances of non-union, in many cases of delayed union, or when union can take place only with the fragments in such bad position as to interfere with useful function. Though the decision upon open reduction automatically assumes the surgical liability of infection, and though infection in these cases may mean bone necrosis or even amputation, still it is a sad reflection upon modern surgical asepsis, on this account to refuse the good chance of restoration to perfect or nearly perfect function to those patients who would remain otherwise more or less permanently crippled, or whose healing would be indefinitely delayed. Only by open operation can interposing soft tissues be removed, sluggish fragment ends freshened and stimulated by curetting, or vicious union corrected. The adult femur is too large for

employment of absorbable material, such as beef-bone plates and screws, for internal fixation. Parham bands are especially useful in oblique or spiral fractures, while in the transverse type not difficult to maintain in good apposition, Lane plates may be chosen.

Of course surgical asepsis is nowhere of greater importance than in bone surgery. The technic taught by Lane, meticulously carried out, is most certainly clean surgery but, to be a practical procedure, requires more practice in bone work than most surgeons get to do; also, it is time-consuming, and, though haste is never advisable, speed is often a great desideratum. Is it not possible that as perfect asepsis can be more simply attained? For several years at the Phelps Dodge Hospital, at Morenci, we have routinely treated surgical wounds thoroughly from the bottom out by swabbing all surfaces with sponges saturated with mercurochrome two per cent. This very simple procedure has been instrumental in doing away entirely with wound infection in clean cases, while in "dirty" cases the degree of inflammatory reaction of the wound is probably lessened.

Authorities agree as to the conduct of the convalescent period, that is, after union has become firm. Ordinarily, at eight weeks, all apparatus may be removed but for a week or two the patient remains in bed while massage and passive motion are begun. No weight-bearing until after the ninth week, and then very cautiously and with use of protective appliances, such as walking calipers or a light spica. At the end of three or four months, all support may be discarded and the patient encouraged to walk on the limb. Fixation and disuse of the limb for a prolonged period of time often results in an undesirable degree of osteoporosis. Too early weight-bearing, however, is the common cause of bending or bowing of the bone.

CASE REPORT

The case I report offers a somewhat interesting and unusual history, interesting in the number of injuries sustained, and unusual, I hope, as regards his postoperative record.

C. E. Mexican miner, age 20; light wiry physique, 5 feet, 3 inches tall; weight, 120 pounds. On June 20, 1927, this man's body was caught and jammed between an elevator in the mine and the wall of the elevator shaft. Examination made at the hospital, an hour later, revealed the following injuries:

1. Vertical fracture of the mandible in the right cuspid region.
2. Simple transverse fracture, upper third, right femur.
3. Simple transverse fracture, upper third, left femur.
4. Internal abdominal injury, as evidenced by lower abdominal rigidity and, a few hours later, by the passing of bloody and tarry stools.
5. In addition to these major injuries, he also

bad compound fractures of four of the metacarpals of the left hand, with partial avulsion of the thumb.

Roentgenograms showed characteristic displacement of fragments of the left femur but, on the right side, separation was extreme; also on this side, there was a large fluctuating swelling, undoubtedly a massive hematoma. Primarily because of the difficulty of reduction or even of immobilization of these widely separated fragments by ordinary means, it was decided to do an immediate open reduction of the right femur. The patient's general condition was fairly good, pulse 78, respirations 24. Intravenous saline was given throughout the operation, and a Lane plate put on. Postoperative reaction was complicated by increasingly severe hemorrhages from the bowel, the patient's condition becoming so serious as to prohibit any treatment of the left femur other than by sandbags, until four days later, when skeletal traction (19 pounds decreasing to 15 pounds) was applied. He remained thus, right femur plated and in plaster spica, left femur suspended in abduction and held by caliper traction for eight weeks.

In the meantime, the internal abdominal injury of unknown character gradually subsided, gross hemorrhages disappearing on the fifth day; the left thumb was amputated and the mangled hand cared for. But for many weeks the fractured mandible required much attention, such as wiring and also curetting of the fragment ends on account of supuration and necrosis. This broken jaw was slow in repair and interfered seriously with nutrition. The enforced liquid diet soon became unacceptable to the patient's stomach and he vomited at least one meal a day. It was three months before he could be given food requiring mastication.

X-rays taken through the cast at the end of seven weeks, showed the fragments of the right femur in perfect position. A week later, the spica was removed and no other support put on. Three weeks later (eleven weeks after the accident and three weeks after removal of the spica) another roentgenogram showed slight bending of this femur though the patient had been constantly confined to bed. In the same picture, considerable callus formation on the left side was observed. But mobility was still marked on this side twelve weeks after the fracture and union so greatly delayed demands operative treatment, especially when position is none too good. This was done on September 14, the fragments being easily held, as in the other femur, by a small Lane plate. Following this operation the spica was left on for eleven weeks; moreover, he was given another two weeks in bed before weight-bearing was started. Walking calipers, or other supports, were obviously impractical here because of involvement of both extremities. So weight-bearing was begun very cautiously and with assistance, five minutes the first day, increasing a few minutes daily up to forty-five minutes on the fourteenth day; then crutches, carefully and for only a few minutes at a time. One morning, about five weeks after beginning with the crutches, a bony prominence of the left thigh was noticed, which proved to be a bad bending. This was six weeks after the start of weight-bearing, nineteen weeks after the plating of this femur. Attempts to straighten the soft callus by extension and manipulation, even under ether anesthesia being ineffectual, osteotomy was done on March 7.

It seems probable that we now have a fairly good restoration of both sides, but bending in each case spoiled an otherwise excellent result. In the instance of the first femur the bending occurred after eight weeks of immobilization in the spica, with the fragments in perfect position, and while the patient was still confined to bed. On the other side, it began probably with the beginning of

weight-bearing, though this was not started until more than thirteen weeks had elapsed from the time of open reduction. Syphilis is ruled out by two negative Wassermanns. Solid union has been encouraged by stimulative diathermy and ultraviolet treatments in addition to massage. What seems to be the most acceptable explanation for soft callus formation in this young man is the interference with normal repair resulting both from the rather large number of major injuries sustained, overtaxing his recuperative powers, and to the semistarvation diet necessitated by the fractured mandible.

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DISCUSSION

(Papers of Drs. Rice and Greer.)

DR. C. A. THOMAS, Tucson, Ariz. (opening): I will not attempt to discuss Dr. Rice's handling of his patient except to say that the results justify the methods used and certainly they were proper. He undoubtedly had a patient badly shocked and in poor condition, and while he undoubtedly acted wisely, how many here, like me, would have felt called on to investigate the abdominal condition first? However, we are discussing fractures and I would rather call attention to some of the things Dr. Greer mentioned. He expresses one important point well when he says: "Do not do anything that will render further damage to the already damaged limb." We see many fractures that have been handled by a number of other people first, and one of the things we are frequently impressed with, is the lack of care that has been given to the superficial parts. Often we find that, if a limb has not been blistered by the original injury, it has been painted with iodine and then wrapped with a tight bandage, and we find it blistered. That makes it impossible to put on traction immediately, or to dress the wound so that the fractures can be held in place. Therefore, I want to call particular attention to the care of the skin and repeat Dr. Greer's warning not to do anything that will further damage an already damaged limb. Yesterday, something was said about hemorrhage in fractures. We always have more or less hemorrhage in fractures, and this has a great deal to do with the final functional result. Hemorrhage frequently is valuable, but if it is large, it interferes with reduction, and if it becomes infected, which it easily does, you have further complications. The doctor spoke of using mercurochrome in open reduction of clean wounds. I have never done this in fractures, but a few years ago I had an idea that by using mercurochrome, which is very mild and kind to the tissues I could avoid all infection in abdominal wounds. Experience soon taught me that, in every wound where I used mercurochrome, there was an exudate which retarded healing by primary union. Therefore, I would feel hesitant over using mercurochrome in a clean open wound.

In treating fractures of any kind, we should give immediate attention to the fracture. If you see a patient today with a fracture, that patient should be treated today, if possible, and not put off until tomorrow. If it is at night, dress it or put it in position so that the patient cannot do himself damage, relieve pain so that shock will be stopped. If it is compound, by all means do a complete debridement as quickly as possible, and, if the fracture is such that it is going to require plating, plate it at once, leaving the wound wide open if

necessary. I know that is considered poor surgery, by some people, but I have gotten away with it a few times, and would repeat it again if necessary. Dr. Rice had some bending shown in his x-ray and I also noticed at one end of his plate the screws had pulled out. That is the reason I object to screws and prefer the bone peg. Bone will not heal in contact with metal, the screws will loosen and you lose control of the bone.

I want to repeat a third time, because I consider it all important, do not do any further damage to a fracture. In many fractures there are repeated attempts at reduction; much damage can be done by this and you will often get infection from such repeated attempts at reduction, probably brought about by superficial infection, with a tight splint causing slough.

DR. R. D. KENNEDY, Globe, Ariz.: This is getting to be a very important subject. It is more important today than ever before, due to the prevalence of the automobile. People are getting out into the sparsely settled districts more than ever before, and there are a great many more fractures from auto accidents in sparsely settled communities. In such communities, if there is a doctor, he is away from the industrial centers and has probably had little experience in the treatment of fractures. Many of these injuries are so severe that the patients cannot be transported, so that it is very important that every doctor in the country today know something about the treatment of fractures. Every doctor in such a community should be supplied with a Thomas splint for transportation of patients. It is not difficult to build a Thomas splint, and, even though the riding causes some hemorrhage, the period of transportation will not extend over many hours and it is not going to do the patient any particular harm. You can get traction and immobilization if you put a towel on the shoe and pull it tight against the lower end of the splint, and can transport the patient in comfort. Another point with regard to fractures near the joints: we have been too timid about early mobilization of these cases. In many of them you will get good union, but the period of disability is prolonged by the stiffness in the joint. In most of them, if properly reduced at first, you can start mobilization as early as two weeks after the injury. Mobilization need not be great to start with; move it a few degrees at first and gradually increase the amount of motion day after day, and, by the end of a month, you will have practically full range of motion, without pain. If you let it go until you can see callus in the x-ray, it will take three months to mobilize the joint; by starting earlier, you can get patients back to work months sooner.

DR. W. L. BROWN, El Paso, Texas: I was especially interested in Dr. Rice's femur case. Sometimes I think that I should like never to see another fractured femur. This bending of the femur is a thing that you have the greatest difficulty in overcoming. Muscle unbalance has the most to do with it, and it is strange how it can come with a spica cast on and patient in bed. It does not seem possible that there is room in the cast for this to occur, and still it will take place. Callus may be still soft when the apparatus is taken off, and by the next morning there is a great deal of bending.

Dr. Rice talked to me about his case, and I do not see how he could have handled it any better. A man with that many injuries could not be treated any other way. Dr. Rice did not observe the hemorrhage from the bowel until after the first operation, which I do not think Dr. Thomas quite understood. I feel like stating again that I wish I might never see another fractured femur.

DR. HAL RICE, Morenci, Ariz. (closing): I doubt very much if we should have had the temerity to attack the first femur surgically, if we

had realized the severity of the abdominal injury. It was some six or eight hours after the operation that the repeated hemorrhages began. Indications then were lower abdominal rigidity, with urine negative for blood and no pelvic fractures; we did not realize what a serious abdominal injury it was. I quite agree with Dr. Thomas' suggestion as to the care of the skin in every case, because one can traumatize an already injured limb by applying skin traction. In femur fractures, we prefer the calliper traction. Regarding the use of mercurochrome on skin wounds: I have absolutely no authority for using it except my own experience, but, in the past five or six years, have used it in several hundred instances, in clean cases as well as dirty ones, and have seen no case requiring drainage of the wound. Have never used drain to relieve serious effusions, and I am convinced, from my own experience, that mercurochrome does keep down the amount of inflammatory reaction that one gets in dirty cases, and has been greatly instrumental in giving us a clean record as regards infection in clean cases. That bending did not occur in either bone until after at least seven or eight weeks. The pictures show that the plate, as small as it was, was holding the bones in perfect apposition. It was after the removal of the spica, first on one side and then on the other, that the bending occurred. The period of usefulness of the internal fixation apparatus had passed, so I can hardly see that the loosening of the screws had anything to do with the bending.

ACUTE INTESTINAL OBSTRUCTION

E. PAYNE PALMER, M. D., F. A. C. S.

Phoenix, Arizona

(Read before the Staff Conference of St. Joseph's Hospital, Phoenix, Ariz.)

Acute intestinal obstruction is one of the gravest and most dangerous of surgical emergencies. A. L. Holland dramatically asserts that the hope of cure by surgery diminishes with each hour that such treatment is withheld. If acute obstruction goes untreated, the patient dies in from a few hours to ten days.

While much has been written on this subject, it is still a live one, and too much attention cannot be given it until the appalling mortality of nearly 60 per cent is materially reduced. The principal reason for this high mortality is the failure to diagnose the condition early. W. D. Haggard says the life of the patient depends on the intelligence and promptitude of the first physician who sees the case, and not on the skill, method or experience of the surgeon who sees the case later. Operations in the first twenty-four hours are extremely satisfactory and the mortality low, but few cases come to operation during this period. It is usually several days, a week, or more, before they come to operation, as was the case in this series.

There are two factors that determine the fatal issue: the actual obstruction in the intestine, and the absorption of the toxic elements from the bowel. There is considerable controversy as to the origin of this toxin, but agreement as to where and how it is formed.

The blood chemistry changes noted in uncomplicated intestinal obstruction are almost identical with those found in complete starvation. There is a marked diminution in the chlorid and an increase in the non-protein nitrogen and urea-nitrogen. There is a depletion of the chlorides before protein destruction begins, with a rise in the non-protein and urea elements of the blood. While 30 mgm. per hundred cubic centimeters is the normal non-protein nitrogen, extreme retention is evident in obstruction (one of our cases showing 300 mgm.). Findings over 100 are considered in the danger zone. Kilduffe says there are only three conditions showing extremely high non-protein nitrogen; uremia, hemolytic anemia and acute intestinal obstruction. The urea nitrogen is increased in practically the same ratio as the non-protein, 12-15 mgm. being the normal range and, in operative cases, 30 mgm. indicating a bad prognosis. One should always resort to blood chemistry to assist in clearing up a questionable diagnosis.

After the diagnosis is made, the preparation of the patient for operation is most important. The stomach must be emptied and washed out, and, in many cases (as in one of this series), the duodenal tube introduced and left in for drainage will prove exceedingly beneficial. A blood chlorid of 400 mgm. should be a signal for generous administration of sodium chlorid. Sodium chlorid has a definite protective value against the toxemia, and is essential in the treatment of this condition, both before and after operation. A rough estimate is that one gram of chlorid to one kilo of body weight should be given as an initial dose in every toxic patient, and some clinicians have given as high as 90 gm. of sodium chlorid per day. This is best given intravenously in 5 per cent solution. Glucose should always be given in conjunction with the sodium chlorid when the cases are of long standing. We have been using intravenously, in patients of average weight, 500 c.c. of a solution containing sodium chlorid 5 per cent and glucose 10 per cent, and repeating every six to twelve hours as indicated.

In all abdominal operations, dexterity, rapidity and surgical judgment are necessary. Here speed is imperative. The surgeon must determine what has to be done and do it quickly.

DON'TS IN INTESTINAL OBSTRUCTION

Don't fail to suspect intestinal obstruction when there is vomiting, colicky or cramp-like pains, visible, palpable or audible peristalsis, inability to expel gas and feces, and absence of fever.

Don't fail to make an early diagnosis when you have the above symptoms.

Don't give physics when you are uncertain about the diagnosis, and then don't give physics at all.

Don't give morphine to relieve pain in acute abdominal conditions until the diagnosis is made.

Don't delay the operation in intestinal obstruction, except so long as to properly prepare the patient.

Don't fail to treat the toxemia after the obstruction is relieved.

CASE REPORTS

Case 1. (Record No. 12439.) Male, age 14, entered hospital November 22, 1927, with the history of having received an abdominal gunshot wound which had perforated the intestines, two weeks previously, and had been operated upon and the perforations closed. He made a fairly satisfactory immediate convalescence, but developed constipation, colicky pains in the abdomen, nausea and vomiting, all of which persisted. Physical examination showed extreme emaciation, anxious expression, tongue furred and coated, abdomen covered by dressings held in place by adhesive. When dressings were removed, abdomen was found distended, with a scar in mid line between the umbilicus and symphysis. Abdomen tympanic, extremely tender. During examination patient vomited large amount of duodenal contents of characteristic fecal odor and brownish color. Patient's condition too critical to permit immediate operation. Deemed advisable to wait until brought back to better condition.

A duodenal tube was inserted and a large amount of brownish, foul smelling matter drained away, and tube was left in position. Proctoclysis of glucose and soda were commenced.

The patient was given, intravenously, 500 c.c. of 5 per cent solution of glucose in normal saline solution. The same evening 1000 c.c. of the same solution were given, and this dosage repeated twice the following day, and again on the morning of the 24th, when his condition had sufficiently improved to permit of operation.

Under ethylene and local anesthesia, a left paramedian incision was made about four inches in length. Intestines were found adherent to anterior abdominal wall at the point of the incision of previous operation. Numerous adhesions were found in the intestines and omentum. Intestines were distended and filled with fluid. The obstruction was located at about the center of the ileum. Numerous adhesions were loosened in order to permit intestinal peristalsis, and entero-colostomy was made between the lowest possible point in the ileum and the sides of the cecum. The wound was closed without drainage. The duodenal tube was allowed to remain in position, and the patient was given water by mouth within a few hours. Proctoclysis was continued, as was the intravenous medication. On the second day, he was given liquid nourishment, which was continued for three days, at the end of which time the duodenal tube was removed and a soft diet given.

The particular points of interest in this case are that we must be careful in closing perforations of the intestines, in order to prevent obstructions, and that the duodenal drainage and preparatory treatment of this class of cases is especially important, and will frequently save lives.

Case 2. (Record No. 12,657.) A baby, seven months old, previous health good. Baby awakened from sleep with a scream. Vomited at once and continued to cry. Was given breast feeding, which was immediately vomited. Was given castor oil without any effect. Enemas were ineffective. Baby

was examined by physician twice during that day. Consultation to determine cause. Consultant advised sending baby to a pediatrician, so it was referred to Dr. Fournier, who made a diagnosis of intussusception, offering but little hope for recovery. Infant in semi-coma, cyanotic. Abdomen slightly distended, tympanites and tenderness over entire abdomen. No rigidity. No mass apparent in abdomen. Blood around anus. Bloody stool passed frequently, in small amounts.

Under local anesthesia, median incision between the symphysis and umbilicus. Free fluid found in abdomen. Small intestine distended. About four inches of ileum invaginated through ileocecal valve. It was impossible to reduce completely, two inches being gangrenous. This was resected. Because of the extremely critical condition of the patient, enterostomy was performed. Abdomen closed.

Normal salt solution with glucose was given. Baby's condition grew worse after returning to room. Cyanosis increased. Respiration became shallow and irregular, and baby expired about an hour after operation.

The interesting points in this case are that we had a baby who awakened from sleep with a scream, and vomited at once, which persisted. It was unable to expel gas and feces, with an absence of fever, and bloody discharge from the bowels. With these unmistakable symptoms, the diagnosis of intussusception should not have been overlooked.

Case 3. (Record No. 13,080) Male, age 44, entered hospital February 19th at 6 p. m., with the following history. On February 14th had sudden onset of cramplike pains in the abdomen, followed by nausea and vomiting. Vomiting persisted and increased in severity. At first it consisted of food and bile, later became fecal, and the odor was foul. After the onset of pain, physician was called, who advised him to enter another hospital, which he did, where he remained for four days. Was then advised that he should return home, and that his condition would improve. After going home, the symptoms continued.

Examination showed face cyanotic, anxious expression, marked dehydration. Respiration was jerky and shallow. Heart sounds were feeble. Abdomen distended, tympanitic. Intestinal coils showed through abdominal wall in peristaltic movement. Vomited duodenal contents while being examined. Diagnosis of intestinal obstruction, with a diverticulitis in mind.

Under gas and local anesthesia, the abdomen was opened mid line between the symphysis and umbilicus. Large amount of fluid was found in the abdomen. Distended coils of intestines presented in the wound. Exploration of abdomen disclosed mass in the pelvis which, when brought through the wound, proved to be gangrenous ileum 18 inches long, and a diverticulum which was also gangrenous. The gangrenous condition was due to an adhesion between the diverticulum and intestines and a loop of intestine slipping in the opening. Resection of gangrenous gut and diverticulum. Closure of the distal end of intestine. Rubber tube inserted into proximal end and purse-string suture placed in end of gut around end of tube for drainage. Abdomen closed with drainage and proximal end of intestine brought into lower portion of wound and sutured to muscle sheath.

On the following day, the patient's condition was good. Nausea and vomiting had ceased, and he took water freely. With the aid of pituitrin, bowel emptied very effectively of fecal matter and gas. Next day, patient was distended, and pituitrin again very effective. Patient seemed unable to expel gas without pituitrin. Enemas, of course, not effective, because lower bowel not distended. Two days later, patient seemed worried. Pulse weak. Condition

seemed less favorable. Next day the patient's condition worse. Was given saline and glucose intravenously three times that day, up to 3 p. m. Drainage from enterostomy profuse. At 8 p. m. on February 25th, patient was given 500 c. c. of citrated blood, by Dr. Milloy, preparatory to operation next day, in an attempt to connect the bowel. Patient's condition seemed very good the next morning.

Under local anesthesia and gas, opening in ileum was closed with pursestring suture, and adhesions loosened. When this was done, a large amount of foul-smelling pus poured from the wound. Large drainage tube was inserted to bottom of cavity. No further surgery was done at this time.

The patient's condition improved after drainage of abscessed cavity, but pulse was weaker than before the operation. Fecal drainage became thick and contained undigested food. Two days later patient's condition seemed worse. Fecal drainage through enterostomy lessened. Said pain in abdomen felt as it did when he first became sick. He gradually grew worse and died on March 7th, sixteen days after first operation, and eight days after second operation.

The interesting points of this case are that a physician was called early in the case and sent him to a hospital where he was under observation for four days. Either there was a failure to diagnose the case, or his condition was considered hopeless and he was sent home so as to protect the hospital's mortality rate.

Case 4. (Record No. 13,394). Patient, female, 76 years of age, entered hospital with protruding mass at umbilicus, associated with pain and dragging-down sensation in the epigastrium. Patient has had a large umbilical hernia for 47 years. Was examined by me five years ago and advised to have a herniotomy to avoid strangulation of gut. Two weeks ago she developed colicky pains in the abdomen, followed by vomiting and obstipation. Some gas was expelled. She has been unable to take food, but has taken some water during the past two weeks.

Examination showed anxious expression, pinched features otherwise negative, except abdomen, which was pendulous, distended. Large mass around umbilicus. Umbilicus is red with abrasions of epithelium, with purulent discharge exuding from umbilicus.

Under gas and local anesthesia elliptical skin incision made around umbilicus. Sac dissected down to fascia, large sac opened, found to contain practically all the omentum and strangulated small intestine. After application of moist heat to gut, the circulation was good enough to permit gut being returned to abdomen with no danger of gangrene. Greater portion of omentum clamped, ligated and excised. Hernial opening closed by Mayo method.

Patient's condition improved. Fifth day post-operative, patient had chill. Wound opened, foul-smelling pus drained, which cleared up nicely under Dakin's and heat. Patient left hospital six weeks after operation, entirely well.

Here we have an old lady with a hernia of forty-seven years' duration, who has had a partial obstruction for two weeks without great damage to the bowel, and an exceedingly satisfactory recovery.

Case 5. (Record No. 13,520.) Female, age 35, entered hospital April 20th, 1928, with a history of having developed severe abdominal pains in the lower left iliac region three days previously. Later the pain was in the right iliac region. Pain was associated with nausea and vomiting. At the onset, the pain was of sufficient severity to require the administration of morphine. There was marked constipation. Physics were given, but were vomited. Enemas were used without any effect other than the expulsion of some gas.

Examination negative down to abdomen. Abdomen distended, tenderness over entire abdomen. Rigidity of lower portion of abdomen most marked on right side. Tenderness most marked over right iliac region. A provisional diagnosis of appendicitis was made, but when the white blood count was taken it was 3,600. This was against the diagnosis of appendicitis, so a blood chemistry was ordered. Bimanual examination made, showed uterus enlarged and tender, tubes palpable and tender. Physical findings indicate appendicitis, with blood picture and chemistry against this diagnosis. The white blood count when first taken was 3,600; taken a few hours later, was 2,800. Non-protein nitrogen was 300 mgm. per 100 c.c. of blood, or ten times above normal. Provisional diagnosis of partial intestinal obstruction made. Sodium chlorid and glucose were given intravenously.

Laparotomy was performed under gas and local anesthesia. Four-inch incision was made between the umbilicus and symphysis. When the abdomen was opened coils of distended intestines presented themselves. Examination showed adhesions between the ileum, uterus, sigmoid and cecum, producing three distinct points of obstruction, all of which were incomplete. There was a chronic inflammatory process in the pelvic organs and in the appendix. By blunt and sharp dissection, the obstructions were released and the raw surfaces covered over. No attempt was made to correct the pelvic and appendiceal condition. Following the operation there was no discomfort, no nausea, or vomiting. The patient's bowels moved voluntarily a few hours after the operation, and she made an exceedingly satisfactory recovery, leaving the hospital in fourteen days, in very satisfactory condition.

The particularly interesting point in this case was the sudden onset of symptoms in a case of chronic inflammatory process the exceedingly low leucocyte count, the very high non-protein nitrogen, and a very satisfactory convalescence, with no further disturbance from the chronic inflammatory conditions.

DISCUSSION

DR. WIN WYLIE: Intestinal obstruction is just as old as mankind and just as dangerous as any condition and just as deadly as it ever was. When we speak of ordinary obstruction, Dr. Palmer has told us that 60 per cent die. Now that is true, without any question, but it does not give the true condition. If you take many cases, such as intussusception, for instance, in which the diagnosis is made quickly, the prognosis is too severe, but from a surgeon's standpoint—from my own personal experience—60 per cent does not begin to take care of it. For instance, take a case when the internist or family physician has been called to the bedside and looks over the patient and gives the patient a round of calomel. Why does he give him calomel? Because he is vomiting and cannot keep other cathartics down. Thus, three or four days are lost before the case reaches the surgeon. Has that man 40 per cent of a chance to live? Not one-tenth of one per cent. The responsibility is only shifted from the physician to the surgeon. I recall a case I operated on twenty years ago. I was called in to operate on a woman who was in a dying condition, by men who were antagonistic to me. I operated, opened her abdomen and found the abdomen full of fecal matter, castor oil, water and everything else that could possibly get into the intestines. A little adhesion following a previous operation, perhaps 1/16 of an inch in diameter, was found. It had severed the necrotic gut and the contents had flowed out—the Lord only knows how long the gut had been open. I made strenuous objection at the time prior to operation, both to the

physicians and the husband of the patient, objecting to the operation on the ground that it was too late for a possibility of recovery and upon the further ground that it was not right to shift the responsibility from the medical men to the surgeon. Did this patient have 40 per cent of a chance to live? She had no chance at all. My pseudo friends did do me the kindness to say that I performed the operation with great dexterity and rapidity. She was dying when she went on the table and lived one hour after she got off. This carries another lesson with it: if these doctors had recognized the condition, say, forty-eight hours earlier, her life could have been saved, without much damage being done, simply snipping a little adhesion, which would have cured this woman.

All of us have seen cases of strangulated hernia go on and on, accompanied by stercoraceous vomiting and nausea, not seen by a surgeon before the patient is beyond recovery. At operation, the necrotic intestines are filled with gas and food; the intestines are drained, if you like—the patient will die anyway. The time is coming when the physician in this class of cases will pay more attention to saving the life of the patient than to his own reputation. Of course, physicians and surgeons both have to make a reputation, and so they don't want to make a mistake and tell the patient that he must have an operation and find, a few hours later, that the patient has had a bowel movement. The time is coming when we are going to depend on enemas, and when we are unable to get fecal matter, and there is nausea, pain and distention, instead of more castor oil, etc., the patient will be put on operating table at once. If it is a mistake, what harm has been done?—the patient will get well without much inconvenience. Almost always, even if there is no obstruction, you have some other abdominal trouble which warrants an operation. The one important thing is, as Dr. Palmer has said, we must emphasize the importance of diagnosis, and, if the internist will just give the surgeon half a chance, we will save many a life. I remember one case in this hospital, quite a number of years ago, of a young woman who said she had good bowel movements each day, but we knew she had a surgical abdomen. In opening her abdomen, we found about ten feet of necrotic bowel, with abdomen filled with foul matter from intestines. Again, the operator had no chance in the world to save this woman. Morphia should never be administered until operation is set, and abdomen should be opened as quickly as possible after diagnosis of intestinal obstruction is made.

DR. W. W. WATKINS: I have observed two cases of suspected bowel obstruction, in both of which, by x-ray, we were able to decide after examination that there were no obstructions present. One of these cases was having fecal vomiting and other symptoms of obstruction, including distended abdomen. By x-ray examination we were able to state positively that there was no obstruction present. The other case was also vomiting but did not have fecal vomiting. In this case there was evidence of bowel obstruction, both by x-ray examination and physical examination. It was necessary to give this patient barium enema, by means of which we were able to state positively that there was no obstruction in the large bowel. Dr. Wylie comments about the use of enema in such cases. By giving barium enema it is possible to visualize the large bowel, and determine within few minutes whether obstruction is present in the colon, and its exact location. The two cases mentioned, coming close together, in which it seemed positive that obstruction must be present, in which x-ray examination determined that no such condition existed, seem to be worth remembering.

CASE OF BRAIN ABSCESS WITH RECOVERY

JOHN J. McLOONE, A. B., M. D.
Phoenix, Arizona

(Read before the monthly conference of the Staff of St. Joseph's Hospital, Phoenix, Arizona).

J. G., age 24, female, white, first came under my care January 25, 1928. She gave the following history:

"Ten years ago had abscesses in both ears as a complication of measles. One month ago became ill with scarlet fever. A week after the beginning of this illness experienced pain in left ear. Drum-head was opened by her attending physician. Pain has continued intermittently with profuse discharge. During the past ten days pain over the mastoid and left parietal region has been very severe."

Examination showed a discharge from the middle ear, sagging of posterior superior wall, and extreme tenderness over the mastoid area. Culture from ear showed staphylococci.

X-ray findings showed destruction of the cellular structure of the left ear with haziness throughout the mastoid process and increased density in the superficial cells.

Patient was admitted to hospital on the 25th of January with temperature of 99.8; pulse 110; respiration 20. Blood count: red cells 3,800,000; white, 15,200; hemoglobin, 80 per cent; mononuclears, 14 per cent; polynuclears, 86 per cent.

On the following day I did a mastoidectomy on the left side. Following skin incision, cortex disclosed a fistula through mastoid cortex extending downward to tip and posteriorly toward the lateral sinus. Mastoid was large and of the pneumatic type. Antrum was placed high and deep. There was a small amount of granulation tissue in mastoid antrum. All mastoid cells were destroyed and replaced with granulation tissue and pus. Bony wall over lateral sinus was destroyed over an area about 2 by 4 mm. Complete exenteration of mastoid cells was done. Tip, which was found to be necrotic, was removed. On account of disease having invaded posterior superior wall it was partly removed. Semi-radical mastoid operation was done.

Post-operative temperature ranged from 97.8 to 100, being around 99.6 most of the time, reaching normal quite often and remaining normal for several hours at a time. Pulse ranged from 80 to 108; respirations 20 to 22. During the post operative period there were occasional attacks of dizziness, severe headaches, and some nausea. There was no nystagmus. Eye grounds were normal. No abnormality in reflexes was found at this time. These symptoms gradually subsided after seven or eight days and from that time she made an uneventful recovery and was discharged from the hospital on February 13, 1928. The middle ear was then dry and mastoid wound was healing very kindly.

After discharge from hospital, patient was seen at my office at frequent intervals. By the 23rd of March the mastoid was completely healed. Patient then returned to her home and she did not come under my observation again until April 4th. While absent from Phoenix, she contracted a severe head cold and, as a result, had a recurrence of her mastoiditis. Her chief complaint was severe pain in the left parietal and temporal regions. Pain radiated over the entire side of face.

On April 11th she was again admitted to hospital. Temperature at this time was 99.4; pulse 102; respirations 22. On the following day her temperature reached 102.4. Blood count: 14,800 white cells; hemoglobin 90 per cent; mononuclears 18 per cent; polynuclears, 82 per cent.

On the 13th of April mastoid was reopened. Operative findings disclosed a complete bony regeneration except for that section of the mastoid which is below the entrance of the antrum. There was an unusual amount of granulation tissue over the middle fossa. Dura was exposed posteriorly over an area about the size of a dime. There was an opening in the dura about 4 millimeters long. All necrotic tissues in antrum cavity and over dura was removed.

Following the operation, the patient showed the usual febrile reaction. However, on the following two days, temperature range was from 100 to 104. Pulse 88 to 102; respirations 17 to 20. Blood count on February 15th showed hemoglobin 80 per cent; red cells, 4,910,000; white 19,600; mononuclears 26 per cent; polynuclears 74 per cent. At the first dressing, a large amount of pus was present in the mastoid wound and middle ear.

On the 15th, two days following operation, there was marked rigidity of neck. Kernig's sign was elicited, and in a greater degree on the left side than on the right. On account of a generalized hyperesthesia, examination for other aberrant reflexes was not satisfactory. She was at times stuporous and again delirious. She responded to questions in regard to certain bodily activities, but expressed herself incoherently. There was an aphasia present and sensorium was at times extremely clouded. Patient gave indications of very severe pain in the frontal, parietal, and temporal regions. Mercurochrome was given intravenously, followed by a chill lasting 15 minutes.

On the following day, April 16th, spinal puncture revealed 10,640 cells per cu. mm. with some excess pressure. Cells were mostly polynuclears and fluid was blood tinged. There were no bacteria present.

Eye grounds showed some fullness in veins but no papilledema. There was intermittent ptosis of the left upper eyelid and some twitching of face muscles on the left side.

Dr. Kingsley saw the patient in consultation and concurred in my diagnosis of meningitis and probable brain abscess. His findings are as follows: "Patient is stuporous and non-cooperative. She is at times delirious. Pupils widely dilated from atropine, the right more than the left. Neck is extremely rigid. Patient objects to being moved. She has marked Kernig's sign. Reflexes are all present." Blood transfusion was given on this date by Dr. Milloy. Aphasic symptoms, together with nervous irritability, by this time had become more intensified. On the 17th, the blood culture which was taken on the 15th showed a streptococcus, which later proved to be hemolytic. The pus from the middle ear and mastoid wound had diminished considerably.

On the 18th, mercurochrome was again given intravenously followed by a chill lasting 15 minutes. For the next few days chilly sensations and periods of extreme drowsiness were noted. Temperature range was from normal to 100 and 102. Pulse varied from 82 to 110. Patient's condition remained about the same until the 20th, when she showed some slight improvement. There was some neck rigidity and a slight left Kernig's. Temperature, pulse, and respiration remained practically the same. Blood transfusion was done on the 19th. On the 20th, a blood count was made showing hemoglobin 95 per cent; red cells, 4,000,000; white, 11,600; mononuclears, 35 per cent; polynuclears, 65 per cent. On the same date mercurochrome was given intravenously followed by a chill lasting 10 minutes.

On the 21st, patient's temperature dropped to 98.4 with a slight evening rise. Pulse 84; respirations 18. She had spent a much better night. The entire picture was improved. She responded accurately to one of the direct questions asked by me and could at times ask for what she wanted.

On the 24th, mastoid culture showed staphylococ-

cus. Patient complained of some pain over left eye. There was a slight rhinitis on the left side of nose. Neck rigidity had disappeared.

On the 25th, blood count showed 80 per cent hemoglobin; 4,800,000 red cells; 13,200 white cells; 60 per cent mononuclears; 40 per cent polynuclears. Dressings were changed. There was a moderate amount of purulent discharge. Blood culture was taken.

On April 26th, the aphasia was about the same and was definitely of the amnesic type. Patient complained of pain over frontal and parietal region. There was tenderness in these regions on pressure. Kernig's and rigidity of neck had disappeared. Ptosis of left eyelid was noticed. This occurred spasmodically. Muscular movements of both eyes were unimpaired. Examination of eyegrounds showed fullness of veins of both eyes. Disks were inflamed. Both pupils were moderately dilated, the left only reached to light. The eyes were very sensitive to light.

Temperature range from April 21st to 27th was from 98.4 to 101.4; pulse 84 to 108; respirations 18 to 22. *Streptococcus Immugen* was being given daily.

Another blood transfusion was done on the 27th. Examination of the spinal fluid on this date showed cell count had diminished to 12 cells per cu. mm. Blood culture taken 72 hours previously showed no growth. Urine was normal.

From April 27th to 28th, the patient's temperature ranged from 99.6 to 101.8; pulse from 80 to 106; respirations from 16 to 20. Patient was irrational. Aphasia and pain were very much intensified. A complete radical mastoid operation was done. A roughening of the tympanic roof was found, with some pus in the deeper cells. Some granulation tissue was removed from over dura. Bone was removed from over dura of tempo-sphenoidal lobe. No healthy dura was encountered anteriorly, although all bone over antral roof and superior portion of tympanum was removed. After careful exploration, an extensive abscess was found in this region. About two ounces of pus were removed from the cavity. On account of the large amount of necrotic tissue present, which seemed to have invaded the entire lobe, I was unable to determine whether or not the abscess was encapsulated. Pus was obtained from the anterior, superior, and posterior regions of the lobe. Culture of pus revealed a streptococcus. The abscess cavity was drained with two long tissue drains. One was placed anteriorly and one placed toward the superior portion of the abscess cavity. The wound was left wide open. A few hours following the operation patient appeared more rational than she had during the past 4 days. Immediate post-operative temperature was 102.4; pulse 140; respirations 28.

Culture from the brain abscess showed a streptococcus. An autogenous vaccine was made and given in gradually increasing doses. There has been a gradual improvement ever since the time of the operation. On the second post-operative day she recognized the nurses in attendance and also asked some rational questions. There was no pain, patient was quite comfortable and she had very little fever. About May 20th, patient's temperature reached normal and has remained practically so up until this time. At the time of this writing, May 30th, there is a marked change in patient's general physical and mental condition. The aphasia so apparent previous to operation has practically entirely disappeared. The tympanic and antral cavity of mastoid are dry and drainage from the cerebral abscess cavity has almost ceased.

COMMENT

It is an interesting speculation to determine whether or not this brain abscess was

a direct complication of the recent acute mastoiditis. The fact that the tempo-sphenoidal lobe contained an unusual amount of pus of a low degree of virulency, the finding of a large mass of necrotic tissue, and the extensive invasion of brain substance which essentially included the entire lobe would indicate a lesion of long standing. The other pathological findings, especially destruction of the posterior auditory canal wall and a roughening of the bone of the tympanic roof are frequent changes noted in a long standing mastoiditis and would tend to substantiate the chronic character of the brain abscess. The early history, too, is significant, that is, that she had bilateral middle ear suppuration following measles 10 years ago.

It will be recalled that, following the first operation, she was extremely dizzy and there was evidence of excruciating pain over the left temporal and parietal regions. This would indicate, even without other conclusive symptomatology, that she might even at that time have had some intracerebral pressure. It is possible that the time intervening between her convalescence and re-admission to the hospital was a latent period of the abscess. The second operation on the mastoid produced, no doubt, some leakage of pus around the meninges. The spinal fluid findings—a drop from 10,600 to 12 cells, with a large number of polys—gave evidence that certain barriers were being formed to protect the meninges from further invasion. To have opened the brain abscess at the time of the second operation or shortly thereafter would probably have resulted in a leptomeningitis.

Culture of pus from abscess cavity revealed a streptococcus which proved to be non-hemolytic. Although a hemolytic streptococcus was found in the blood stream, characteristic temperature curve, together with definite chills, was absent. This could reasonably exclude the presence of a sinus thrombosis.

A meningitis becoming localized after spinal puncture and an aphasia which became more and more aggravated were two of the main symptoms upon which the diagnosis was made. The severe pain in the left temporal and parietal regions and also a very sharp pain reaching to the homolateral eye, which is due to a compression of the first trigeminal branch through the swollen temporal lobe, and intermittent ptosis (3d nerve involvement) with twitchings of the facial muscles of the left side, were also very important signs in determining the presence and localization of this particular type of brain lesion.

CASE OF MULTIPLE ANEURISMS OF THE BASILAR ARTERY WITH RUPTURE

S. H. NEWMAN, M. D.
El Paso, Texas

Patient was a Mexican, age 32, married, carpenter; well nourished individual. First saw him in June, 1926, when he came to the office complaining of pain of twelve days' duration in lower right abdominal quadrant; said the pain was not constant, that at times it extended down to right testicle and that at times he experienced difficulty in urinating, having to strain a great deal to start the flow but, once it was started, he urinated freely. After a few days this pain disappeared, but returned again for a few days in October, and again in September, 1927. At none of these times did he have nausea or vomiting or fever and his pulse was always normal. Examination revealed no tenderness, rigidity, nor muscular spasm; no mass could be made out and no hernia was present. The pain was never severe enough to disable him.

I lost track of the patient then till Feb. 23rd of this year, when his family called me hurriedly about 1:30 p. m. I found him in a semi-comatose condition and apparently in a state of shock; rapid and barely perceptible pulse; skin pale, moist and cold; pupils dilated, right one more so than left and right pupil a little irregular in outline; reflexes apparently present. He lay perfectly flaccid, but, on taking hold of arms or legs, he would resist forcibly. Tongue protruded and jaws were clamped down on it. No acetone odor on breath; breathing was a little rapid but not stertorous. The family told me that he got up as usual that morning but complained of pain in the back of head and neck; after breakfast he went out and worked in the yard until noon, when they saw him fall. They ran out to see him and found him having a general convulsion. This lasted but a few minutes and he passed off into a stupor. He was brought into the house and put to bed. A doctor was summoned. When the doctor arrived the patient partially regained consciousness, enough to make the doctor think the man was intoxicated, but he soon lapsed into a stupor again and remained so until the end. The family stated that he had never had fits before nor had any of his people, as far as they knew, and that he had not been drinking. I forced open his jaws to keep him from biting his tongue off and gave him a hypodermic of strychnine. In a few minutes his pulse became stronger. I advised the family that, if he did not regain consciousness in a few hours, they should let me know and I would send him to the hospital where further examinations would be made. About five p. m. I saw him again. He was just as I left him, only he seemed to have passed out of the state of shock. Pulse was 69, respiration 26, blood-pressure 95/70. Bladder was distended. On examination of head for possible injury, one large and several small spots of alopecia were noted. No injury could be determined. Sent him to City-County Hospital with a working diagnosis of cerebral hemorrhage, probably syphilitic. On his arrival there the interne catheterized him and examined the urine; it was negative for albumin, sugar and casts. A spinal puncture was made about 9 p. m. Needle entered canal easily and fluid drained out readily but not under pressure. Spinal fluid resembled pure blood. A laboratory report on this next day showed a four plus Wassermann. Patient died about 9:30 that same night.

POSTMORTEM EXAMINATION.

Body is that of a Mexican man about average

size, slightly toward slender in type, fair nutrition, no external marks of violence; both shins show marked scarring and discoloration.

Abdomen: markedly distended bladder which did not collapse when emptied; fibrous adhesions between the omentum and bladder. The anterior wall of the bladder showed a slightly trabeculated formation; no enlarged prostate. There were some old adhesions around the spleen and a few between the gall-bladder and colon.

On opening the chest, there was no excess of fluid; heart was normal in size; valves all free and in good condition. The base of the aorta showed an old scar about 25 cm. in diameter but there was no enlargement of the aorta, and the aortic ring was not involved. There were a few slight areas of atheroma, but no calcification. This scarring looked as if it might have been syphilitic, but was not the typical scarified contracted area, with the glary surface.

The lungs were both air-containing. The left, in the lower lobe on the left angle, had considerable thickening, with a few adhesions posteriorly.

Kidneys were examined: pelvis slightly dilated and capsule slightly adherent. They were about normal in size and showed no other marked lesions.

Brain: Skull about moderate thickness. On removing the dura, vessels under the pia showed through and the arteries were opaque, yellowish in color, giving the suggestion of pus being present. On opening the pia, no pus was found, this peculiar change being due to changes in the arteries. The base was surrounded by a clot of blood, thickest over the pons, where it had crowded up the pia and formed a firm clot. On section, the ventricles contained blood-tinged fluid, but no free blood. The clot on the base was gently washed off and a perforation was found in the lower portion of the basilar artery and above it there were six or seven more enlargements of the vessel. No other lesions were found.

DIAGNOSIS: Multiple aneurisms of the basilar artery with rupture of one; general chronic arteritis of the cerebral vessels; chronic aortitis, with chronic pneumonitis and chronic fibrous peritonitis. All these changes were apparently syphilitic. (Dr. Waite).

THE PROBLEM OF EPIDERMOPHYTOSIS

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In recent years, epidermophytosis has become one of the commonest skin conditions in dermatological practice. The disease has become a real economic problem because of its great prevalence in this country, its stubbornness to treatment, and its tendency to recurrence.

General interest in this condition was stimulated by the work of Whitfield¹ in 1920, Sabouraud² in 1910, Kaufman-Wolff³ in 1914, and by Ormsby and Mitchell⁴ in 1916. Formerly classified with the eczemas, its types were designated as eczematoid ringworm, intertriginous eczema, callous, intertrigo, dyshidrosis, or chronic eczema. The layman is acquainted with a variety of the disease as "toe itch."

Microscopical and cultural study has recently proven that a large percentage of these eruptions of the hand and feet are due

to infection with the ring-worm fungus. Of these there are twenty or more species including the *Epidermophyton inguinale*, which is responsible for about one-third of the cases, the *Trichophyton*, the *Blastomyces*, and the *Monilia*. The term "epidermophytosis", as used clinically, includes practically all cutaneous lesions in this group, regardless of the causative fungus.

Clinically the lesions are more or less characteristic, regardless of the variety of the ring-worm fungus present. They differ from micro and megalosporon ringworm in that they do not form rings, attack the hairs or produce kerions.

CLINICAL FEATURES

Epidermophytosis may involve any part of the skin but spares the hair and mucous membranes. Some investigators believe that the fungus or its products may even be disseminated by the blood stream and produce cutaneous lesions elsewhere. According to the type of lesion produced, the types have been designated as vesicular, scaling, macular, macerated, fissured, papular, callous, keratotic, and lichenified. However, the commonest types seen in practice are the acute vesicular, chronic intertriginous, and hyperkeratotic. The disease is most frequently seen on the hands and feet. However, careful examination may reveal areas of infection in other characteristic locations such as the genitocrural region, the axillae, the sub-mammary region, and occasionally the nails.

In the following table, the sites of one hundred consecutive cases of epidermophytosis in private practice are tabulated:

Limited to the hands	29
Limited to the feet	23
Both hands and feet	15
Hands and genitocrural region	4
Feet and genitocrural region	14
Hands and axillae	1
Hands and sub-mammary region	1
Nail involvement	3

Most of the cases occur during the summer months and persist until the cold weather, when they gradually improve or disappear. The heat and increased perspiration and the presence of a softened epidermis, no doubt account for this fact. In the winter the fungi remain dormant in the upper layers of the skin until the proper conditions for increased activity return. Frequent foci include the nails, callosities, and especially the fourth interdigital space of the foot, which acts as an ideal culture tube for these organisms because of its depth and frequent moist condition.

The clinical character of the lesions depends upon the location and the duration of the disease. Cases have been reported in patients who have had the disease as long

as thirty years. The vesicular type may become pustular from secondary infection. This type is usually found on the lateral borders of the fingers and toes and is frequently very pruritic. The factors of pressure and occupation are concerned in the frequency of the hyperkeratotic type on the palms and soles. The intertriginous macerated type is commonly found in the interdigital folds. Painful fissures may develop as complications in any of the types.

The viability of the *Epidermophyton* accounts for the frequency of relapses of the disease. Farley⁶, who studied the dry material from several cases, found that *Epidermophyton cruris* was viable after 432 days. Mitchell⁶ was able to cultivate *Epidermophyton* for 180 and 300 days and *Trichophyton interdigitale* for 300 days. Weidman⁷ was able to culture the *Trichophyton interdigitale* after eight months. An interesting report is that by Mitchell, who was able to culture the *Epidermophyton inguinale* from material brought to a boiling point in a 15 per cent solution of sodium hydroxide.

METHODS OF DIAGNOSIS

Although most cases of epidermophytosis infection of the hands and feet are more or less easily recognized by the trained observer, microscopical examination is a valuable procedure, especially in the doubtful and generalized cases. The skin is cleansed with 95 per cent alcohol and the scales or the tops of the vesicles are collected with a sterile knife or curette. The specimen is then cut upon into pieces of split-pea size, placed on a glass slide, and a few drops of 15 per cent potassium hydroxide solution added. After the cover-slip is in place, slight pressure should be made upon it, and the specimen then examined after thirty minutes with a high-powered lens. To make further studies, cultures may be made, using slants of Sabouraud's glucose media and then transplanting to Erlenmeyer flasks for more detailed study.

SOURCES OF CONTAGION

The disease apparently is not directly contagious, but is transmitted in most cases by inanimate objects. Burgess⁸ studied the scrapings on the fourth interdigital space in one hundred normal individuals and reported negative findings. In 1923 I made cultures of scrapings from the fourth inter-spaces of fifty normal patients. I could obtain no positive cultures of ringworm. It seems therefore that the organisms are not saprophytes but are directly pathogenic.

The ubiquity of the organisms accounts for the many channels of infection. The disease is often acquired in gymnasiums, bath

houses, shower baths, and locker rooms. Among the long list of articles that have been found to harbor the fungi may be mentioned wool thread, woolen socks, woolen bathing suits, leather gloves, the leather handles of golf sticks, the leather straps of wrist watches, shoes, towels, wash-cloths, underwear, rugs, bath mats, bath slippers, floors, bath tubs, and manicure instruments.

Ordinary boiling does not seem to destroy the organisms in laundered goods. Although boiling in water for ten minutes kills the fungus in a test tube, some species are more resistant to heat than others. Weidman's studies showed that most of the species were killed at temperatures far below the thermal death points of bacteria.

Relapses are common in this disease. There are various reasons for these recurrences. Some patients are discharged before they are completely well and before all the fungi have been destroyed. For this reason, it is important to treat all the cases for a few weeks after an apparent cure. The disease may also spread, due to reinfection of the skin from scratching and picking. Unsuspected foci of fungi in other areas, such as the groin or nails, may be responsible for the dissemination of the disease.

Hyperhydrosis is often associated with the disease, a factor that may have some bearing on the prevalence of the disease in summer time. A macerated skin offers a better medium than a dry skin. In many of the intertriginous types, there is a history of excessive perspiration.

TREATMENT

Epidermophytosis is a stubborn disease to treat because of the difficulty of applying a remedial agent of sufficient penetration, and because of the impossibility of sterilizing the skin.

The two principals of therapy in this disease are (a) exfoliation, (b) destruction of the organisms. Exfoliation may be brought about by physical agents, such as light curettement, the energetic rubbing of the lesions with dry gauze, abrasive soaps, ultra-violet light, or the x-rays. Of the drugs used to produce exfoliation, salicylic and benzoic acid (Whitfield's ointment) have proved useful in many cases. The list of parasiticides includes tincture of iodine, mercurchrome, potassium permanganate, carbon tetrachloride, acroflavine, copper sulphate, ammoniated mercury, and sulphur. The numerous remedies listed above is a confession of our inability to successfully cope with this disease.

Small doses of x-ray are very useful, especially in the vesicular and intertriginous types. The itching is soon controlled and the lesions disappear much quicker than

when local methods alone are used. Care must be taken that the palmar types are not treated too often, as extreme dryness may result.

In the keratotic types involving the palms of the hands, the ordinary abrasive soaps used by mechanics are of value in softening the affected areas and shortening the course of the disease.

In beginning treatment of any of the types of epidermophytosis, the dermatitis must of course be treated first and specific therapy instituted only after the process has quieted down; otherwise the resulting irritation may spread the disease and increase the resistance of the lesions to further treatment.

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PUBLIC HEALTH ADMINISTRATION IN NEW MEXICO

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New Mexico is one of the three states in the country in which state health activities are supervised by a department of public welfare.

HISTORY AND DEVELOPMENT

A territorial board of health was organized in New Mexico as early as 1882, but this board held infrequent meetings, sometimes only after intervals of two or three years. In 1901 the legislative assembly established (Laws of 1901, Chapter XVIII) a board of health of seven, appointed by the governor for two year terms, and in 1903 (Laws, Chapter 103) gave this board extensive powers to make regulations and deal with diseases. The board was likewise authorized to appoint physicians as county health officers.

This board was changed, in 1907, to the New Mexico Board of Health and Medical Examiners, comprised of seven reputable physicians (Chapter 34, 1907, as amended by Chapter 99, 1909). It had all the powers of the former board, but never received an appropriation for any purpose. Fees were

received from the licensing of practitioners of medicine, but this source of income eventually became inadequate even to support this particular activity.

New Mexico was admitted to the Union as a state in 1912. In 1914 Dr. C. V. Chapin during his survey of state health work, found that New Mexico was doing nothing in the way of state health activities and he gave the state a rating of zero on the basis of 1000 points¹. In 1918 a survey of public health administration in New Mexico was made by an officer of the United States Public Health Service². He reported that no health work had been undertaken as a state function, except certain limited activities against the venereal diseases, which had been inaugurated in March, 1918, as a consequence of an appropriation from the State Council of Defense. County health work was being conducted and there were a few municipal health agencies, though all these activities were decidedly limited. The health officers were all part time, except in Albuquerque, where there was a full time lay health officer. This survey contained twenty-four recommendations for improving sanitary organization and administration.

In 1919 a new public health law was passed (Chapter 85, Act of March 15, 1919), this being the first state health legislation since 1909. A state department of health was created, consisting of a board and a commissioner. The board was made up of three persons, not more than one of whom could be a licensed physician, appointed for six year terms by the governor, with the advice and consent of the Senate. The commissioner of health was appointed by the board and was required by law to be "a person having experience and special training in sanitary science and public health administration." An appropriation of \$13,000, the first state fund for public health in the history of New Mexico, was made, though this amount was less than half that advocated in the 1918 survey.

The first board of health had a woman as chairman, its other members being a physician and a well-known lay tuberculosis worker. The first act of the board was to request the detail of an officer of the United States Public Health Service as temporary commissioner³. Such an officer was detailed and served until the end of 1921, when he was succeeded by the present executive.

A child welfare service for the state had been created in 1919. In 1921 the legislature combined this service with the health department to form a state department of public welfare (Chapter 117, Act of March 11, 1921). It consisted of a board of five

and bureaus of child welfare and public health, respectively, and such other bureaus and divisions as the board should deem necessary. The board was required by law to have not less than two nor more than three women as members.

PRESENT ARRANGEMENT

The board of public welfare consists, in 1928, of two physicians, two women, and a layman. There are two bureaus under its direction, the bureau of public health and the bureau of child welfare, the directors of which are appointed by the board for indefinite terms. The director of public health, required by law to be a person having experience and special training in sanitary science and public health work, is a physician who devotes full time to his duties. The director of child welfare is required to be a woman of experience and special training in child welfare work. The present director devotes full time to her duties. The compensation of each of these officials is set in the law at not exceeding \$4,000 a year. The appropriation to the bureau of public health was \$27,500 for each of the fiscal years (ending July 1) 1928 and 1929.

POWERS OF THE DEPARTMENT

The powers of the state department of public welfare with respect to health are very broad, being set forth in the law as follows:

The State Department of Public Welfare shall have supervision over the health of the people of the State and possess all powers necessary to fulfill the duties prescribed by law with respect thereto, and to bring actions in courts for the enforcement of health laws and the rules, regulations and orders promulgated thereunder by the State Board of Public Welfare. It shall be the superior health authority of the State and have power to investigate, control and abate the causes of disease, especially epidemics, sources of mortality and the effect of localities, employments and other conditions upon the public health; to inspect public buildings, institutions and premises and industries; to establish, maintain and enforce isolation and quarantine; to close theatres, schools and other public places and to forbid gatherings of people when necessary to protect the public health; to abate nuisances; to regulate the plumbing, drainage, water supply, sewage and waste disposal, lighting, heating and ventilation and sanitation of public buildings; to regulate the sanitation of schools, hospitals and sanatoria, maternity homes, asylums, orphanages, hotels, lodging houses and tenements, factories, workshops, industrial and labor camps, recreational resorts and camps, barber shops, swimming pools and public baths, places of public amusement, and public conveyances and stations; to collect, compile and tabulate reports of marriages, births, deaths and morbidity and to require any person having information with regard to the same to make such reports and submit such information as it shall by regulation provide; to cooperate with federal health authorities; and other health agencies in carrying out measures for the protection of the public health and to incur expenditures in that behalf; to regulate the disposal, transportation, interment and disinterment of the

dead; to make laboratory investigations of public health matters and maintain facilities for that purpose; to disseminate public health information; to prevent infant mortality; to prescribe prophylactic treatment for the prevention of infant blindness; to promote child hygiene; to regulate the practice of midwifery; to regulate the sanitation and safety for consumption of milk, meats and other foods; to supervise the work of local health officers, to promulgate rules and regulations governing the same, and to perform the said work, at the expense of the county or municipality affected, in case the local health or governing authorities fail, neglect, or refuse to perform said work or make proper provision therefor.

In accordance with this authority many rules and regulations have been promulgated by the board. They cover such subjects as: the control of communicable diseases; sanitation of public camp grounds; sanitation of construction camps; notifiable diseases and accidents; deaths and births; the dead, midwifery, qualifications of county health officers; infant blindness; water supplies and sewage disposal; common drinking-cups and towels; swimming pools; railway sanitation; shellfish; insanitary toilets; public school buildings.

ADMINISTRATIVE ORGANIZATION

Under the supervision of the director, the bureau of public health has five divisions as follows:

- County Health Work
- Laboratory
- Vital Statistics
- Preventable Diseases
- Sanitary Engineering and Sanitation
- Child Hygiene and Public Health Nursing
- Public Health Education.

Each is in charge of a full-time executive. The activities may be summarized as follows:

County Health Work. This division assists local part time health officers in the control of disease outbreaks and stimulates the development of adequate local health service. In 1925 there were ten full-time county health officers, but in 1928 there were only seven.

There were in 1928 no municipal health officers in the state.

Laboratory. The laboratory makes general diagnostic tests and analyzes water samples.

Vital Statistics. This division collects and compiles birth and death statistics. The state has not yet been admitted to the Federal registration areas. This division also collects morbidity reports.

Preventable Diseases. The director of the bureau supervises this division, though the actual collection of data is entrusted to the chief of the vital statistics division.

Sanitary Engineering and Sanitation. Plans for water supplies and sewerage are

received and approved by this division and investigations and inspections are made.

Child Hygiene and Public Health Nursing. This division conducts general maternity and infant hygiene work and public health nursing. The state has accepted the Federal Maternity and Infancy Act and under its terms was allotted \$12,430.33 for the fiscal year 1924.

The Bureau of Child Welfare in the Department of Public Welfare has jurisdiction over such matters as child labor, mental hygiene, institutional service, community organization for social work, and social case work.

Public Health Education. This work is in charge of the director.

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CLINICAL CASE STUDY FORUM

(Based on the cases to be studied by the Yavapai County-Fort Whipple groups.)

Any medical society or hospital staff in the southwest is invited to discuss these cases and send in their conclusions for publication in the November issue of this journal.

CASES FOR OCTOBER 2, 1928

CASE 1.

A married Irishwoman sixty-one years old came to the Emergency Ward August 11 complaining of hematuria.

A year and a half before admission she fell on her knees and heard something snap in the small of her back. The following day she had gross hematuria which cleared up very soon and returned only rarely until six months before admission. Then she had another attack which immediately cleared up. X-ray examination of the genito urinary tract at this time was said to be negative. Two months before admission she had another attack. For one or two months she had had pain in the right side. For six weeks she urinated three or four times at night. There was no frequency by day. At present her urine was "very hard and sudsy." At times she had pain radiating down the lateral surface of the right hip, and also pain up the back of her neck. She tired very easily and she fainted easily. At times she felt a "smothering sensation in her epigastrium." She had marked dyspnea on exertion. Her present weight was 165 pounds, normal for her.

Her family history is irrelevant. Her past history was negative except for frequent colds and sore throats.

Clinical examination showed a dyspneic woman lying flat. The skin was pale, the lips and mucous membranes cyanotic. Numerous carious teeth. Marked pyorrhea. Heart not enlarged, action irregular, rate 120, sounds not of good quality, no murmurs. Pulses and arteries normal. Blood pressure 115/85. Lungs normal. Abdomen obese. Fullness and a questionable mass in the right flank. Right costovertebral tenderness. Pelvic examina-

tion: uterus in two degrees retroversion, moderate vaginal discharge, laceration of cervix. Pupils slightly sluggish. Knee-jerks not obtained even with reinforcement.

Amount of urine not recorded. Sediment of a catheter specimen showed 5 to 10 red blood cells per highpower field. Another specimen showed a very slight trace of albumin, specific gravity 1.025, 5 leucocytes and 1 red cell. Blood not recorded. Wassermann negative.

Temperature 101.2 deg. to 97.2 deg, pulse 90 to 115, respiration 20 to 31.

The patient had considerable pain in the right flank and seemed low spirited and exhausted. August 12 cystoscopy was done and a pyelogram taken. She seemed to be quite comfortable afterwards and slept well, although her pulse was 90 that evening. Early the next morning she awoke dyspneic and said she was dying. The pulse was 160, the respiration 48. An hour later the house officer found her dead. The chest and abdomen were resonant throughout, the abdomen soft.

CASE 2.

A married Canadian woman fifty-eight years old came to the Out-Patient Department November 4 complaining of pain and gas on the stomach of two months' duration, with a letter from her physician with a diagnosis of gastritis and neurasthenia.

She dated the trouble from a hysterectomy for fibroids of the uterus thirteen years previously. After the operation she had one sharp attack of gas and pain in the epigastrium. After this she was in good health until three years before the visit. Then when mourning for the death of sister she had noises in her head and was told that she had a high blood pressure. A year before the visit she began to have gas after eating certain things and tearing pain in the epigastrium relieved by belching. The pain occurred half an hour after meals and was somewhat relieved by eating a cracker or by baking soda. There was diffuse radiation of the pain, no definite sharp radiation to the right scapula. She once tried induced vomiting with relief. Russian oil gave much relief. Her bowels always moved one to three times daily without physic. Ten days before the visit she noticed jaundice and a little fever. Both of these had persisted. Her weight four years ago was 165 pounds, two years ago 145, the past summer 135 and at present 107.

She gave a history of urticaria, of shortness of breath for a year, growing progressively worse, palpitation for three months, appetite irregular. She had had occasional diarrhea for one or two days for a year. Her urine was occasionally dark.

Examination showed jaundice of the skin and sclerae. Tonsils large, boggy and follicular, with slight injection. Some pyorrhea and dental caries. Heart not enlarged. At the apex a moderately loud somewhat rough systolic murmur widely transmitted. First sound not entirely obliterated. Second sound clear. A systolic heard at the aortic area, probably the systolic from the apex transmitted; not heard at the pulmonic area. Aortic second sound rough. Occasional extrasystoles. Lungs normal. Spleen palpable at the costal edge, descending two fingerbreadths below the margin on inspiration. A small indefinite mass in the right upper quadrant near the midline. A median laparotomy scar in the lower abdomen.

Hemoglobin 80, red blood count 4,520,000, smear normal. Temperature and pulse normal.

The patient was given orders for sodium bromide, nux vomica and gentian compound and milk of magnesia. A gastro-intestinal series with a Graham test was ordered.

November 9 x-ray examination with a barium meal showed no definite lesion. Peristalsis of the

stomach was sluggish. The duodenal cap was irritable and emptied rapidly. Examination with a barium enema was negative. The gall-bladder was reported negative.

November 18 she reported feeling much better. The pain in the stomach was gone. She was referred to the Dental Clinic, where all her lower teeth and some upper teeth were extracted. December 2 her blood pressure was 214/100. After the extraction of her teeth her digestion was much better.

December 30 she reported for blood pressure. She had had another bad attack of indigestion beginning December 22 and lasting until the visit, with severe shooting pains in the stomach and burning in the back. She raised gas and was hungry all the time. One day she had marked jaundice followed by itching, also probably clay colored stools. Her blood pressure was found to be 176/104. Her weight 98½ pounds.

She did not keep an appointment for January 5. and was not seen again at this Out-Patient Department.

CASES FOR OCTOBER 16, 1928

CASE 1

An unmarried American stenographer twenty-five years old entered the hospital January 5 complaining of abdominal pain.

For forty-eight hours before admission she had had moderately severe epigastric pain. At the onset she vomited about a cupful of reddish brown blood.

The following day and the morning of admission she vomited clear fluid. During the illness she had had fever, anorexia and marked weakness.

Her family history is good.

Thirteen years before admission she had thyroidectomy. Two years before admission she had appendicostomy for colitis. She had had periodic sensations of discomfort in the epigastrium, usually of a day's duration, which occurred coincidentally with menstrual cycles and followed complete cessation of menstruation in April, twenty months before admission. Since the onset of this her stools had had the gross characteristics of mucous colitis. Her catamenia had always been irregular. During the winter before admission she was despondent and attempted suicide with veronal. During the past few months her health had been good as compared with the past few years. She had gained weight.

Clinical examination showed a fairly well developed and nourished woman with pale skin and mucous membranes. An old scar on the anterior surface of the neck, well healed. Heart not enlarged. A soft blowing systolic murmur over the apex, not transmitted. Pulses not of good volume and tension. Blood pressure 130/70. Lungs normal. Abdomen somewhat distended, tympanitic throughout, tender over the right upper quadrant and epigastrium, especially the former, on deep palpation. An old scar over the appendix with a small fistula. Slight purulent discharge. Vaginal examination unsatisfactory. Moderate tenderness in both fornices. Extremities, pupils and reflexes normal.

Urine at admission negative. The day of death the very slightest possible trace of albumin, acetone positive, 6 to 10 leukocytes and 2 to 5 red cells per field (not a catheterized specimen), many granular casts. Blood: 21,000 to 16,600 leukocytes, 82 per cent polymorphs, 20 per cent lymphocytes, hemoglobin 50 per cent, reds 3,500,000. Wassermann negative. Stool examination showed gross blood and bile.

X-ray. The detail of the lung was obscured by respiratory motion. The right lung was slightly less radiant than the left, especially at the base.

Temperature 102° to 106.2°, rectal. Pulse 112 to 167. Respirations 24 to 37.

The patient was critically ill, semidelirious. She went rapidly downhill. The medical and surgical House staff and a medical consultant could make no diagnosis. January 7 she became comatose. A lumbar puncture showed normal dynamics. The spinal fluid showed 350 leukocytes, normal chemical contents. That day the patient died.

CASE 2

A married Italian woman forty-two years old came February 26 to the Emergency Ward, where she was thought to be uremic.

For two weeks she had had headache and dimness of vision.

Her family history is unimportant. She had had eleven children. All but two had died. Her husband denied venereal disease. His pupils reacted slightly.

The only past history obtained was that she was in bed for ten days with slight fever two summers before admission.

Clinical examination showed a well nourished woman. No rigidity of the neck. Transient internal strabismus of both eyes. Right eye slightly more prominent than left, with redness of the conjunctiva. Slight ptosis of left lid. Left side of face moved less than right. Smoothing out of lines on that side. Many small bilaterally enlarged cervical glands. Apex impulse of the heart not seen, barely felt in the fifth space in the nipple line, 11 centimeters from midsternum, corresponding with the left border of dullness. Right border of dullness 4 centimeters from midsternum. Rhythm slightly irregular. Sounds of poor quality. A systolic murmur at the apex, transmitted to the axilla. Aortic second sound accentuated. Pulses synchronous, equal, irregular, small volume and high tension. Artery walls not felt. Systolic blood pressure 120. Lungs, abdomen and pupils normal. Right knee-jerks present but slight. Left knee-jerk not obtained. Plantar reflexes normal.

Amount of urine not recorded, urine cloudy, specific gravity 1.029, a trace of albumin, rare hyaline casts and much pus in the single examination. Hemoglobin 80 per cent. Slight poikilocytosis, otherwise blood smear normal. Leukocytes not recorded.

Temperature 97.4° to 100.4°, pulse 120 to 61, respirations normal.

The patient was very noisy and entirely unreasonable. She complained of constant headache. February 28 there was nothing new on physical examination except possibly a little rigidity of the neck. A lumbar puncture done that day gave about 40 cubic centimeters of cloudy pinkish fluid under considerable pressure. In the counting chamber only red cells were seen. On centrifugalization red sediment was thrown down, leaving a clear colorless supernatant fluid. Smear showed red cells, rare mononuclears and very rare polynuclears. No bacteria seen. Culture: no growth. March 1 a second lumbar puncture was done and similar fluid was obtained. A neurological consultant found paresis of one or more of the ocular nerves and noted that the patient did not use the right side of her mouth well. He obtained no knee-jerks. She refused to do or say anything at his examination. A consulting oculist found the right eye slightly prominent. He was unable to make out any limitation of motion. The left eye showed convergence at times. Both fundi were normal.

The patient continued to complain a great deal of headache. She lay in stupor and suddenly cried out. March 2 she died.

The discussions of Yavapai County-Fort Whipple group, of the Maricopa County Medical Society, and of any other society or staff organization who will send in their discussions or diagnostic conclusions, will be published in our November issue. Save these clinical histories as they will not be republished. In the November issue, the discussions of the Massachusetts General Hospital clinicians will also be published, with autopsy findings.

THE SOUTHWESTERN MEETING

Albuquerque—November 8, 9 and 10.

Dr. J. R. Van Atta, of Albuquerque, chairman of the Program Committee, announces that there will be an excellent program, full details of which will be given in our October issue. The Program Committee deferred to the wishes of the Bernalillo County Medical Society, and have endeavored to formulate a clinical congress patterned after last year's meeting. The following are some of the men who will participate:

Dr. H. J. Ullman, radiologist of the Santa Barbara Cottage Hospital, Santa Barbara, Calif., will give two clinical talks on phases of his work. Dr. Ullman was one of the first men in this country to undertake the investigation of the use of colloidal lead in malignancies, after the work of Bell (England) was announced. In the field of radiation treatment, Dr. Ullman has been a leader.

Dr. Verne C. Hunt, of the Mayo Clinic, Rochester, will give two clinical addresses on surgery. Dr. Hunt is one of the well-known surgeons of the Mayo group, and is Associate Professor of Surgery at the University of Minnesota Medical School. He is a graduate of Rush Medical College, class of 1913.

Dr. Simon Jesberg, of Los Angeles, will present a paper on Bronchoscopy. Dr. Jasberg is one of the leading men on the coast in this line of work.

Dr. Dennis R. W. Crile, of Chicago, an orthopedic surgeon of Chicago, will give one clinical address on some surgical subject. Dr. Crile is a comparatively young man, graduated from Harvard University Medical School in 1917, but is one of the leaders in his line of work in Chicago.

Dr. William Engelbach, of St. Louis, hardly needs introduction. With the degrees of B. S. and M. S. from the University of Illinois, he graduated from Northwestern University Medical School in 1902, followed by postgraduate work in Paris, Berlin and Vienna. He was instructor of medicine in St. Louis University from 1906 to 1909; then assistant professor of medicine in the same school from 1909 to 1911; then pro-

fessor of medicine from 1911 to 1924. Was the chief of staff of St. John's Hospital from 1909 to 1924. He will present two clinical lectures on subjects relating to endocrinology.

Dr. John H. Musser, of New Orleans, professor of medicine at Tulane University, president-elect of the American College of Physicians, will give a clinical address on some subject in internal medicine. Dr. Musser has had a distinguished career, with a B. S. degree from the University of Pennsylvania, he took his medical degree from the same school in 1908; after serving as assistant professor of medicine at his alma mater from 1919 to 1924, during which time he was also editor of the American Journal of Medical Sciences, he accepted the chair of medicine at Tulane University in 1925, where he has been since.

Dr. Karl A. Meninger, of Topeka, Kans., is so well known through the southwest that he is almost one of us. Since his graduation from Harvard Medical School in 1917, he has given his attention to neuro-psychiatry. As a teacher and lecturer Dr. Meninger always attracts, and those who have once heard him will go far to hear him again.

Dr. Leonard Freeman, of Denver, professor of surgery at the University of Colorado Medical School, one of the eminent teachers of surgery in the west, will give an address on some surgical subject.

Dr. James W. Kennedy, of Philadelphia, one of the leading surgeons of that city, will give a clinical talk. Dr. Kennedy, a graduate of Jefferson Medical College in 1899, is surgeon in charge of Joseph Price Hospital, gynecologist to the Coatesville Hospital, gynecologist and obstetrician to the Philadelphia Dispensary.

Dr. J. Arthur Myers, of Minneapolis, will present a paper on some phase of internal medicine. Dr. Myers, with degrees of B. S. and M. S. from Ohio University, took his medical degree from the University of Minnesota in 1920. He was instructor in anatomy at the University of Missouri in 1913 and held a similar position with the University of Minnesota from 1914 to 1919; he was assistant professor of medicine at the University of Minnesota from 1920 to 1925, and was chief of staff of the Lymanhurst Hospital from 1921 to 1928; he has been chief of the tuberculosis service of the Minneapolis General Hospital from 1923 to 1928.

Dr. John W. Shuman, of Los Angeles, will present a paper on Lung Abscess, with clinic. Dr. Shuman, after graduation from the University of Pittsburgh in 1912, was located at Sioux City, Iowa, where he was senior at-

tending physician at St. Vincent's and the Good Samaritan Hospitals from 1913 to 1922; he was professor of medicine at the University of Beirut in Syria 1922 and 1923. He is now senior attending physician for the Los Angeles General and Hollywood Hospitals.

ABSTRACTS FOR CURRENT LITERATURE

Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association; for 1927; with the comments that have appeared in the Journal.

During the course of a year the Council examines a considerable number of agents which it cannot admit to New and Non-official Remedies. The reports of findings and studies upon the rejected substances are published in the Journal and this small volume is a collection of the reprinted articles. In certain instances there is found material here which was not of sufficient importance to occupy space in the Journal, but which is included here in order to make the reports complete.

In instances the reports are in the nature of preliminary findings and only subsequent examinations will place the remedies in question in New and Non-official Remedies or in the rejected class.

Ask the "Detail" men if their remedies are found in New and Non-official Remedies; if they are not found there the real reason will be found in this work and probably not in the explanation of the "detailer."

SYPHILIS: A Treatise on Etiology, Pathology, Symptomatology, Diagnosis, Prophylaxis and Treatment—by Henry H. Hazen, A.M., M.D., Professor of Dermatology and Syphilology, Medical Department of Georgetown University; Professor of Dermatology and Syphilology, Medical Department of Howard University; Member of American Dermatological Association; Visiting Dermatologist and Syphilologist to Georgetown University Hospital, Freedmen's Hospital; Author of "Diseases of the Skin", "Cancer of the Skin", etc.; Second Edition; with 165 illustrations including 16 Figures in color; St. Louis; C. V. Mosby Company; 1928; \$10.00.

Monographs are the best type of books for scientific subjects. They become out of date, but the references to the literature always make them valuable reference works. This monograph is splendidly language, chaptered, paragraphed, and illustrated.

The paragraphs on Infection and Immunity, by Major Matthew A. Reasoner, U.S.A., in the chapter on Pathology is of exceptional interest and value.

The reviewer finds much in the book to commend and nothing of importance to criticize. It seems that the malaria treatment of paresis should deserve more than one short paragraph which is all that is devoted to the subject. This speaks, however, for the author's conservativeness.

There are occasional errors. For example on page 34 under viability, sixth line, we read: "Postmortem material containing organisms is infectious at the end of twenty-four hours." Substituting "up to" for "at the end of" would not only shorten the sentence but would give more accurately the intent of the sentence. Again on page 552, third paragraph, he says: "The graduate physician can receive an intensive course of efficient training in one of a half dozen hospitals." It is evident that the author means that the training can be received in any one of a half dozen hospitals.

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SOUTHWESTERN MEETING IN ALBUQUERQUE

Owing to hotel conditions in Albuquerque, it has been found necessary to change the dates of the Medical & Surgical Association of the Southwest meeting to November 8, 9 and 10.

Detailed announcement about special features of the program will be found elsewhere in this journal. Complete program may be looked for in our October journal, which will issue about October 15th.

This is the second time the Association has gone to Albuquerque, and the Bernalillo County Medical Society is preparing for a banner meeting, and cordially invites every doctor in the Southwest, with wives and families, to attend. The beautiful new hotel which will be our headquarters, offers a very attractive setting for our meetings. Built in pueblo style, it is one of the show-places of the Southwest.

Albuquerque has several excellent hospitals and sanitaria available for clinics. Several of our noted visitors will hold teaching clinics, and this should prove a very attractive meeting.

DR. CHARLES A. PETERSON

(By Dr. W. V. Whitmore)

The Pima County Medical Society is now called upon to mourn the death of Doctor Peterson. Last winter, about a month after we learned that Doctor Butler was afflicted with a malignant disease—before we had forced ourselves to accept that—we were cast into deeper gloom by the fact that Doctor Peterson had a similar trouble. In the case of Doctor Peterson the initial lesion

was quite circumscribed and its prompt and apparently complete removal gave hope that the lesion had not seriously invaded the general system and that thus his life might be spared. While both doctors received treatment from some of the leading experts in the country, it did not avail.

Dr. Peterson came to Tucson shortly after his discharge from the World War. He promptly acquired an extensive and appreciative clientele and soon became recognized as very successful. Later, he became the most popular and efficient obstetrician Tucson has ever had. His work in this line soon occupied practically all his time, leaving none for general practice.

He possessed excellent personal qualities—was pleasant, kind, considerate, always good natured and had a good word for everyone, he was always sincere, square and to be depended upon. Naturally the members of the society appreciated such qualities and were all his friends.

Outside the profession these same qualities secured for him numerous friends. I doubt if any member of the profession here has ever had a larger number of real genuine friends—from all walks of life.

But above professional popularity and success—above these personal qualities, admirable as they were, were his high ideals, his upright life and his Christian character. His domestic relations were ideal. He was a devoted husband and a kind and indulgent father. He felt most keenly the loss of his eldest son as a result of experience in the war. (Another son lost his health from the same cause.) Surely this family did its "bit" for the country.

He was a loyal and valuable citizen, court-
ing no publicity, he supported every meas-
ure for the improvement of the community.

No member of this society had to apolo-
gize for any act of Dr. Peterson's. In fact,
the society has never had a member more
worthy to serve as an example to others—
particularly the younger men. Dr. Peterson
will long be remembered because of his ex-
cellent qualities.

PERSONAL LIBERTY AND PUBLIC HEALTH IN NEW MEXICO

Our sympathies are entirely with Dr.
Lockett, head of the Bureau of Public
Health of New Mexico, in his determined
efforts to secure compliance with the vital
statistics requirements of that state. In a
personal communication, Dr. Lockett states
that our news item of last month to the
effect that some of the New Mexico doc-
tors might have an opportunity to see the
inside of a jail on account of their derelic-
tions, is being quoted in that state to his
embarrassment. We are perfectly willing to
admit that the statement about the jail was
fathered by our own wish that such might
be the case.

Too long have New Mexcio doctors and

Arizona doctors, and doctors elsewhere, tak-
en refuge in the lackadaisical good-nature of
the officials entrusted with the care of the
public health. The idea that a doctor is at
liberty, after securing a license to practice,
to handle the sick who come under his care
without due regard for the public welfare,
is a false notion and if heavy fines or jail
sentences are necessary to bring about a
proper understanding of, and respect for
the public health laws, then we say more
power to the health official courageous
enough to enforce these laws! No doctor is
of sufficient importance in any community
to justify the idea that HE is not bound by
the health and vital statistics laws of the
commonwealth. Simply because he does not
see or appreciate the importance of regis-
tration of births and deaths is not sufficient
reason for his neglect in complying with
these laws. When a man cannot see he
should be willing to be led by those who do
see.

PERSONALS AND NEWS NOTES

DR. R. B. HOMAN, medical director of the Homan
Sanatorium of El Paso, Texas, has given up his of-
fice in the First National Bank Building of that
city, moving to the sanatorium, where he will do
all his work in the future.

DR. J. H. WOOLEY, formerly of Sonora, Mex-



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ico, will be located in Tucson, Ariz., after September. He has been spending the summer months on the coast.

DR. W. M. RANDOLPH, for many years located in Cochise County, lately at Dos Cabezas, has returned to Virginia, his old home, and will be located at 406 Park St., Charlottesville, Va., in the future. The profession in Arizona will regret the loss of Dr. Randolph from their circles.

DR. L. A. W. BURTCH, of Phoenix, has taken postgraduate work in the eastern cities during August and September.

DR. FRED HOLMES, of Phoenix, who with Mrs. Holmes, spent the summer in postgraduate work in Europe, has returned to his practice. Most of his work was taken in Vienna under Neumann, but some time was spent in other cities where the best work is done in chest diseases.

DR. HARLAN P. MILLS, of Phoenix, has returned to his work with the Pathological Laboratory, after a month spent in touring the national parks in the west, including Mesa Verde, Yellowstone, Zion, Bryce, Grand Canyon.

DR. E. L. CHRISTENSEN, of Miami, will spend the month of September in special study in eye, ear, nose and throat in the clinics of San Francisco and vicinity.

DR. RAY FERGUSON, of the White River Indian Reservation, was in Safford, Ariz., on business affairs during the latter part of August.

DR. E. S. GODFREY, Director of the Bureau of Communicable Diseases of the State of New York, formerly Superintendent of Health of Arizona, will direct the Section on Epidemiology for the 57th annual convention of the American Public Health Association, which will be held at the Stevens Hotel in Chicago, October 15th to 19th.

DR. FELIX P. MILLER, of El Paso, president of the Texas State Medical Association, entertained Dr. M. E. Taber and family, of Dallas, early in August. Dr. Taber came to western Texas bear hunting.

DR. CARL H. LUND, of Douglas, was confined to the Presbyterian Hospital in Chicago, for some time during August, undergonig examination and observation.

DR. O. H. OLIVER, formerly of McNary, Ariz., has moved to Douglas, Ariz., where he will engage in practice. His address is 800 Eleventh St.

DR. R. J. STROUD, of Tempe, Ariz., addressed the Hiram Club of Phoenix on August 15th, on the subject of "Present Day Necessities in Preventive Medicine."

THE ARIZONA STATE BOARD OF HEALTH

has issued a set of regulatoins governing the sanitation of tourist camps. After inspection of the camps, approval of those which comply with the regulation is given. The regulations, when complied with, should go far toward preventing spread of disease from such gatherings.

The new VETERANS' BUREAU HOSPITAL in Tucson, Ariz., has been completed and the keys turned over to Medical Director Wm. McFaul. Formal opening of the hospital has been set for October 17th. The dedication services will be in charge of the American Legion of Tucson, and the program includes addresses from Gen. Frank Hines, director of the Veterans' Bureau, Gov. G. W. P. Hunt, Senators Henry F. Ashurst and Carl Hayden, Representative Lewis Douglas, Mayor Frank Cordis of Tucson, and others.

DR. WILLIAM DICK CUTTER, since 1923 dean of the New York Post-Graduate Medical School, has been appointed acting dean of the University of Southern California School of Medicine, which will open in September offering the first year of pre-clinical medicine.

Enrollment of first-year students in the newly-organized school has been limited to 54. More than 200 applications for admission have been received by the University authorities. From this number the 54 best-qualified applicants have been selected. Three years of pre-medical work in an approved college or university are required for admission.

The newly-appointed acting dean is a graduate of Yale University and the Medical School of Johns Hopkins University, from which he received his doctor's degree in 1905. He served his internship at the French Hospital, New York City, and then joined the hospital staff of the Copper Queen Mine, Bisbee, Ariz., where he was located from 1906 to 1910. The following year he became professor of physiology and pharmacology in the medical department of the University of Georgia, remaining there until 1919 when he became secretary of the Board of Medical Examiners of New York State. In 1923 he took up his work as dean of the New York Post-Graduate Medical School. He resigned that position to accept the headship of the newly-constituted school at the University of Southern California.

The new dean is a member of the American Association for the Advancement of Science, the American Medical Association, the New York Academy of Medicine, Phi Beta Kappa, and Sigma Xi.

DR. WILLIAM LOWE, who came to Arizona several months ago after eighteen years in industrial work in New Jersey, has been located for the past



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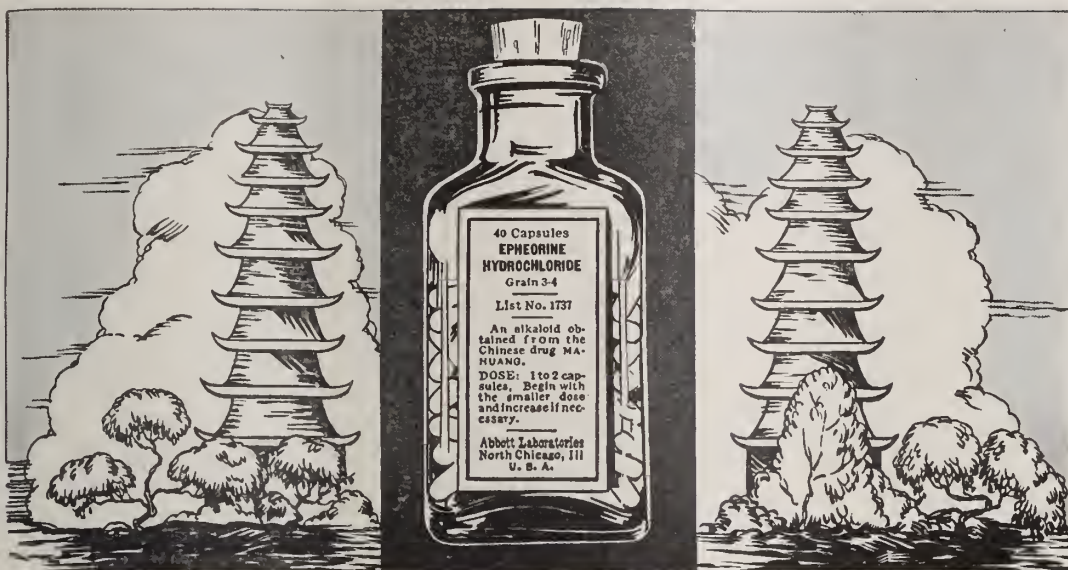
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six months at the Grand Canyon Bridge site, taking care of the industrial surgery for the Kansas Structural Steel company, who are erecting the bridge across the Colorado River seven miles below Lee's Ferry. This bridge will stand as one of the noteworthy engineering features of modern times, and will open up the little known regions north of the Grand Canyon to tourist travel.

DR. C. D. JEFFRIES, of Williams, Ariz., has moved into new offices on the first floor of the new hotel building. From the "News" of Williams, Ariz., it is noted that he will have associated with him, DR. ORVILLE CUTTEMUP.

DR. H. B. LEMBERG, of Casa Grande, Ariz., has opened the first unit of his new hospital in that town. The present unit will care for six patients, and has a fully equipped surgery. A graduate nurse will reside in the hospital.

DR. FRANK A. RUTLEDGE, formerly of Columbus, Ohio, has located in the Security Building, Phoenix, Ariz., where he will engage in practice. He announces a practice specializing in diseases of the bowels and rectum.

MEDICAL ARTS BUILDING IN EL PASO: The proposed medical building in El Paso, to accommodate doctors and dentists, seems to be assured. The proposed site is at the corner of Texas and Stanton streets. The building is being constructed by Mr. Bassett, president of the State National Bank, the architects being Trost & Trost. Dr. E. J. Cummins is acting as chairman of the committee of doctors to approve the general plan of the building.

DR. L. M. TOMPKINS, of Gilbert, Ariz., was a delegate to the American Legion convention in Miami, in August. Dr. Tompkins was formerly located in Miami, where his many friends were glad to greet him.

WHOOPIING COUGH SEASON: Warnings are being issued by wide-awake health officials relative to whooping cough. This is one of the most dangerous diseases which afflict children, causing more than ten thousand deaths annually. It is usually thought lightly of by the public, and there is great need for education relative to the dangers of this infection and the best means to avoid it.

ASK ME ANOTHER QUESTION

(Neurology)

Neurology is admittedly a difficult subject, but is one which every clinician should know something about. These ten questions (copied from a small advertising pamphlet called "The Clinician"), look easy, but the doctor who can obtain a passing mark on them is a good neurologist. Try it out on yourself.

1. What is the Babinski sign?
2. Paralysis of which nerve causes wrist-drop?
3. What is the Brown-Sequard syndrome?
4. What mental disease is characterized in its beginning by great emotional indifference?
5. What is the most important sign of brain tumor?
6. When the patient understands spoken and written language but cannot speak or write, what is his condition called?
7. What is the most common cause of multiple neuritis?
8. In what disease do the hands lose sensation for pain, heat and cold, although the other senses are preserved?
9. In hemiplegia what is the condition of the tendon reflexes?
10. What is the specific treatment for epidemic meningitis?

BOOK REVIEWS

ASTHMA—Its Diagnosis and Treatment—by William S. Thomas, M. D., Associate Attending Physician in Immunology, St. Luke's Hospital, New York; 20 illustrations in black and white and six in color. Paul B. Hoeber, Inc., New York; 1928; \$7.50.

There are 20 chapters as follows: Definition and use of the term "asthma"; nature and causes; pathology; outline of procedure in handling a case; case history taking; physical examination—methods and findings; palliative treatment; protein skin tests and their technique; protein skin reactions and their interpretation; some details of testing and treatment—proteins used; air-borne proteins; food proteins; autogenous vaccine skin tests—their technique—reactions and interpretation; pollen asthma and its diagnosis; treatment of pollen asthma; complications; non-specific radical methods of treatment; causes of disappointing results. It also contains a bibliography consisting of 14 pages.

The table of contents, as presented, gives a fairly complete conception of the book. The author has had an exceptionally large experience in the treatment of asthma. He has 325 references to the literature which are the more important recent contributions to the subject.

The reviewer finds little to criticize either in the subject matter, or English. There are a few typographical and other minor errors.

On page 35, the 5th line from the top, the word multiple is used where it should be multiply. On

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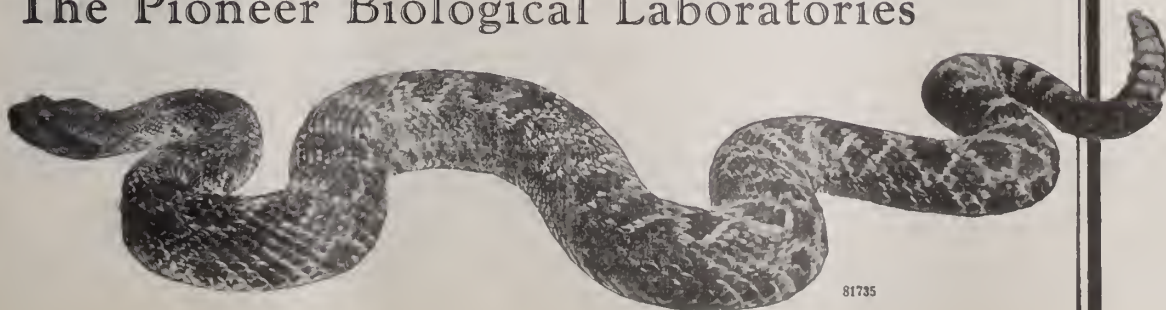
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page 64, top line, the word "or" is used where "to" is evidently meant; also on page 93, in the fourth line from the bottom, the author uses "or" where "to" would give a better meaning. On page 93, in the first paragraph towards the end, he says "4/10 of one per cent solution of sodium hydroxide may be weakened to one per cent." It is evident that he means 1/10 of one per cent. In the seventh line of the second paragraph, page 114, the word "some" adds nothing to the strength of the sentence. Page 152, in the fourth paragraph the third sentence, he says "we subjected all of our patients to an examination", where he means that they subjected all of the patients to physical examinations; plural should have been used instead of singular. Page 155, in the last word of the first paragraph, "discovered" has an "I" in place of an "i." On page 215, in the fourth line from the bottom, there is a word "warranted" where it would appear that "unwarranted" is the word intended.

On page 136, is given the substitutes for bread; I would suggest lima-bean flour from which bread can be made.

On page 29, the author says that angioneurotic edema may occur in the bronchial mucous membrane, but thinks it has not been substantiated. Frudenthal in 1912, observed a tremendous swelling of the trachea and bronchi during an attack of asthma. Ephraim, Adams, Stork, Glasgow, Nowotony, Keiper, Heilskoy and Mahler, and Moeler.

The author has prepared an excellent monograph which may be safely used as a guide for the handling of asthmatic cases. It is the best which has come to the attention of the reviewer and conforms remarkably closely to the reviewer's experiences.

The book is to be commended as timely, thoroughly rational, and in line with modern advances on the subject. It is unequivocally recommended.

THE SURGICAL CLINICS OF NORTH AMERICA; June, 1928; Volume eight, Number three; Chicago Number; W. B. Saunders Company, Philadelphia and London; Paper \$12.00 and Cloth \$16.00 per clinic year.

The June issue has 219 pages, 49 illustrations, 20 contributors, and 31 separate reports. The more important subjects discussed are: Intussusception, anorectal disease, ventral hernia-fascia transplant, walking splint for delayed union and non-union of fracture of tibia and both bones of the leg, differential diagnosis of carcinomatosis and tuberculous peritonitis by means of the cystoscope, abscess of omentum, gastro-enterostomy disease, and alkalosis.

The importance of alkalosis especially as a post-operative complication is stressed. In the patient in question a gastroenterostomy had been done by a tumor mass which obstructed the pylorus. The surgeon reflects that a second operation for removal of the obstruction, had it been thought of in time, would likely have saved the patient. He outlines the treatment consisting chiefly of hydrochloric acid by mouth and a five per cent sodium chloride solution by the veins.

Each paper is full of helpful data.

THE EXAMINATION OF PATIENTS, by Nellie B. Foster, M.D., Associate Physician to the New York Hospital; Associate Professor of Medicine at Cornell University College of Medicine; Second Edition revised; W. B. Saunders Company, Philadelphia and London; \$4.50.

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profit by a frequent perusal of this book by Foster. It has but 392 pages and is only about one inch thick. It is a succinct, brief, encyclopedia of diagnosis. It is highly recommended by the reviewer.

UTERINE MALIGNANCIES:—This paper reports observations of the technic of management of uterine malignancies at the Radium Institute in Paris. The therapeutic indications at this Institute are as follows: (1) Cancers deemed best for surgery but not absolutely confined to surgery are, (a) adenocarcinoma of the cervix; (b) cancers coincident with adnexal infection; (c) cancers persisting after the failure of a preceding radium therapy; (d) cancers coincident with vaginal malformation of certain types. (2) All other operable cases in good condition are treated by utero-vaginal radium therapy in preference to hysterectomy. (3) Hysterectomy after radium therapy is recommended only in cases which were operable before radium treatment. (4) Hysterectomy followed by radium therapy is not recommended except in those rare instances where malformations or occlusions of the vagina and uterus exist. (5) Roentgen therapy alone or external radium at a distance is the method of choice in inoperable cases, where the condition of uterus and vagina does not permit correct radium usage; this is necessary in recurrence following hysterectomy. (6) The association of x-rays or radium at a distance with radium applied utero-vaginally is the correct method when the parametrium is invaded.

In using x-rays in conjunction with radium, it is considered important that the x-ray treatment be given prior to the radium applications. X-rays

given following radium is much more inefficient.

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THE MANAGEMENT OF UTERINE MALIGNANCIES AT THE RADIUM INSTITUTE OF THE UNIVERSITY OF PARIS. George T. Pack, B.S., M.D., Tuscaloosa, Ala. Sou. Med. Jour., July 1928. p. 505.

PHYSICAL AND X-RAY EXAMINATIONS OF THE CHEST:—After discussing the proper relation and relative values of the physical examination and the x-ray examination of the chest this author enters into more detailed discussion of the reasons for errors in many roentgenographic interpretations. The summary of his conclusions is as follows:

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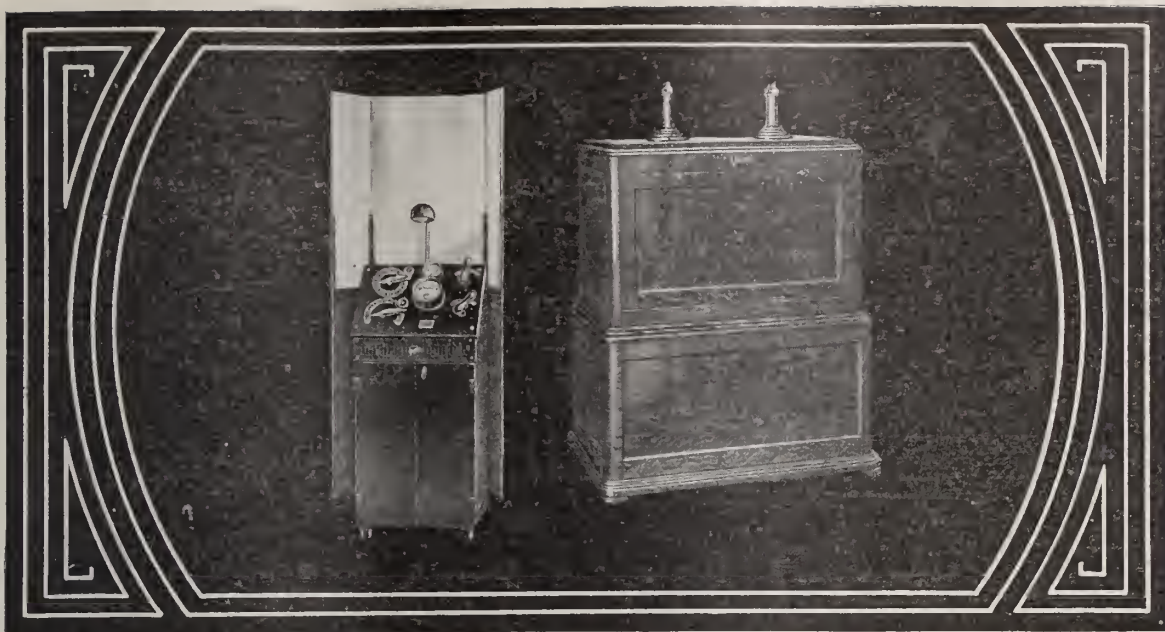
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1. The findings on physical and roentgen ray examination of the lungs show some variation in nearly all instances, and in a small percentage the differences are very marked.

2. The ability of the disease process in the lung to produce shadows depends upon the power of the various elements making up the structures to intercept the rays, and this varies approximately according to the fourth power of the atomic number of their composing elements. Therefore, on the plate, small lesions may show perfectly if composed of elements whose atomic number is high, and large ones may not show at all if the atomic number of the chief component elements is low.

3. Lesions nearest the plate, (taken at a distance of 40 inches) show best, because the tissues nearest the tube are overpenetrated and consequently fail to intercept the rays and produce shadow. Therefore, there is considerable variation in plates taken antero-posteriorly compared with those taken posteroanteriorly. If a small lesion lies near the surface of the chest wall nearest the tube, it may not be detected at all by the roentgen ray. This error is lessened, but not eliminated, if the tube is some distance from the patient.

4. When small lesions are suspected on physical examination, the patient should be placed dorso-ventrally if the lesion is suspected anteriorly, and ventrodorsally when suspected posteriorly, or, what is better, plates should be taken in both directions.

Certain Factors Militating Against Accurate Correlation of Physical and Roentgen Ray Examinations of the Chest. By F. M. Pottenger, M. D., Monrovia, Calif., Am. Jour. Med. Sci., May, 1928, p. 676.

PHLEBOLITHS:—Only since the advent of x-rays have phleboliths become of clinical interest. That phleboliths cast shadows was proven in 1908 by Clark and Orton, working independently. The presence of phleboliths indicate varicosity of veins, and since varicosities cause pain in the legs, testes and in the pelvis of women when ovarian veins are involved, it is reasonable to suppose that they will cause pain in other localities. The paper is directed chiefly toward the significance of the well known phlebolith shadows in the pelvis. Report by Culligan of the Mayo Clinic is quoted where in 1555 consecutive roentgenograms of the pelvis, 39 per cent showed phleboliths. The report of these authors is based on pelvic films and clinical histories of 900 patients examined at the Stanford University Medical School, of whom 31.7 per cent showed phleboliths. Special interest attaches to fifteen patients, twelve males and three females, in whom the varicosities as evidenced by phleboliths in the pelvis, was the only ascertainable explanation for pain in the lower quadrants. They conclude that these varicosities have a definite clinical significance, which has been largely ignored in the past.

Phleboliths. James R. Dillon, M.D., and Bernard A. Cody, M. D., San Francisco, Division of Urology, Stanford Univ. Med. Sch., Calif. & West. Med., June, 1928, p. 800.

GORGAS MEMORIAL

With special programs arranged in various parts of the United States as well as in foreign countries, the Gorgas Memorial headquarters here announce anniversary plans for October 3, the birthday of Dr. William Crawford Gorgas. The fight of Gorgas against yellow fever and malaria and his administrative genius as surgeon general of the army during the World War, as well as his famed work in the field of sanitation are to be stressed in these meetings. Thirty-three health corps of the Memorial will participate.

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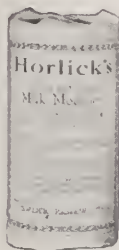
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Of particular importance in this year's citation of the various efforts of the Memorial to honor the name of Gorgas is the statement that "one of the leading scientists in the field of tropical medicine" will soon be chosen by the Scientific Board of the organization, to take charge of the laboratory in Panama. This laboratory is made possible by an annual appropriation of the United States government of \$50,000, which is to be supplemented by grants from some twenty-one South and Central American countries.

Panama has given over the use of a magnificent edifice recently erected for a proposed school of medicine to the Memorial, and it is predicted by Memorial officials the research campaign will be under way by November first in these quarters.

The development of the Memorial activities in the field of research will not interfere with the health educational campaign throughout the country, it is stated. The present plan of sending out caravan speakers to the various communities stressing the periodic examination and urging more public support for scientific medicine, will be continued. In the past few weeks these speakers have appeared before 156 groups in the middle-west, have reached millions through the radio, have exhibited health films to 42 associations, with an audience of 24,843, and have added in their trip seventeen daily newspapers to the list for Gorgas health material.

RENAL TUMORS:—The clinical differentiation of different types of tumors is frequently possible by urography, supplemented by clinical and cystoscopic data. Renal neoplasms may be divided into two groups; (1) cortical tumors (hypernephroma, carcinoma, sarcoma, papillary cystadenoma, adenoma and lipoma); (2) renal pelvic tumors (epithelioma, papilloma, leukoplakia).

The pyelogram in cases of hypernephroma or adenocarcinoma usually show elongation of the calyces; the major calyces may be constricted and flattened throughout, and the minor calyces may be tapering, often hook-like; usually only one or two of the major calyces are involved. In cases of alveolar carcinoma, the growth is likely to involve the pelvic wall, causing abbreviation and irregular dilatation of calyces, instead of elongation and narrowing. In cases of difficulty in differentiating hypernephroma from polycystic kidney, a pyelogram of the other kidney should be made, as polycystic disease will show bilateral deformity. The benign tumors of the kidney do not show the common deformities of hypernephroma; there may be evidence of compression, with constriction and flattening of the pelvis with abbreviation of the calyces. Large solitary cysts usually cause a deformity which consists in abbreviation of adjacent calyces, compression and flattening of the adjacent portion of the pelvis, and change in position and axis of the kidney.

Cicatrical changes from chronic pyelonephritis may be difficult to differentiate from the deformities of tumor. Likewise it is often difficult to differentiate intrarenal and extrarenal tumors; displacement of the kidney pelvis in the pyelogram is of little significance, as it may occur in either; the pelvic deformity of intrarenal tumor is of more value.

Differentiation of the type of tumor, when possible, has great clinical value in treatment and prognosis.

DIFFERENTIAL DIAGNOSIS OF RENAL TUMORS. William F. Braasch, M.D., Section on Urology, Mayo Clinic, Rochester, Minn. *Sou. Med. Jour.*, June, 1928, p. 425.

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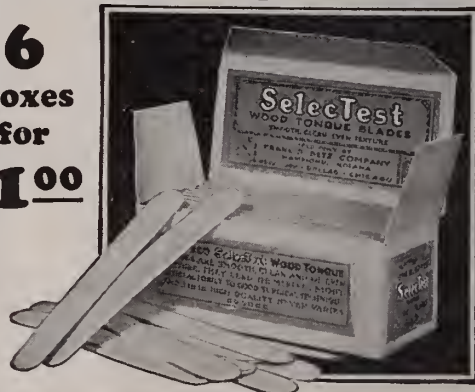
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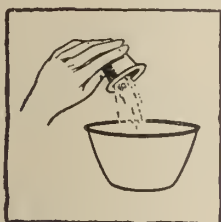
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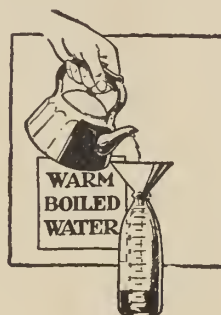


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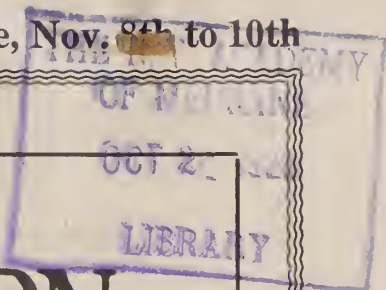
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Volume XII.

OCTOBER, 1928

No. 10

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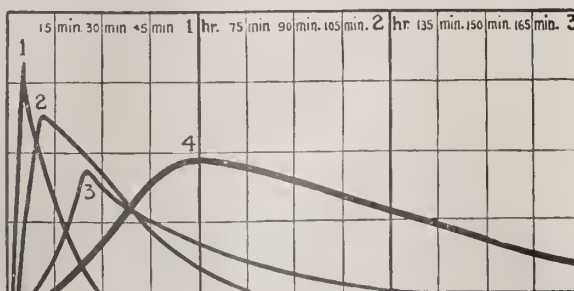
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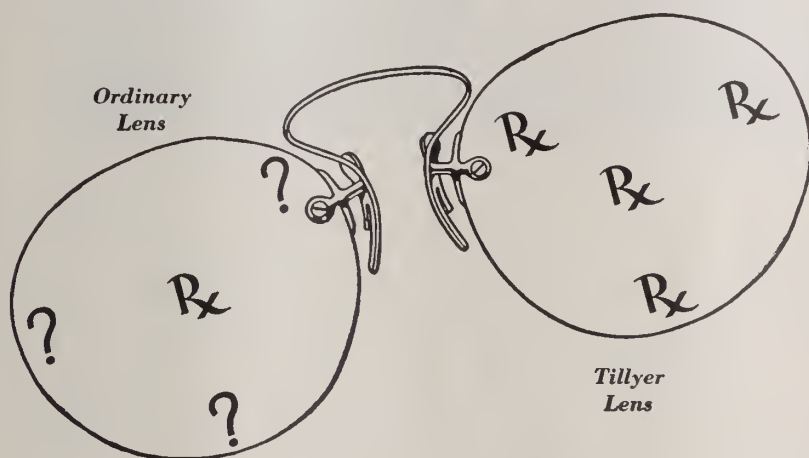
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PUBLIC HEALTH MEASURES IN POLIOMYELITIS

GEORGE S. LUCKETT, M. D.
Director, Bureau of Health
Santa Fe, N. M.

(Read at the Thirty-seventh Annual Meeting of the Arizona State Medical Association, Tucson, April 20, 1928.)

Public health measures concerned with poliomyelitis may be separated into two major groups: (1) efforts to prevent spread of infection, and (2) salvage operations. The first are conceded to be a duty of the state; the second seem to be as clearly a duty, for both humanitarian and economic reasons, in so far, at least, as we have to deal with those who cannot, or will not, help themselves.

CONTROLLING INFECTION

What can be done to curtail the spread of infection? In all candor it must be admitted that our present control measures are based largely upon theoretical grounds; we do not have satisfactory proof that they are even partially effective. Let us keep that fact in mind, lest we be tempted to dogmatize too confidently.

First in order of importance, is early and widespread publicity, whenever an outbreak of poliomyelitis appears to be gathering momentum. A slight increase above the usual prevalence, especially following a decline of two or three years duration, should warn a health officer to be on the alert. When the number of cases has risen steadily during three consecutive weeks, he is justified in giving the facts to the public without further delay. To wait until an outbreak has become fully established, until the seriousness of the situation is obvious to everyone, before taking decisive action, is to waste time of critical value. It cheats prevention of its only chance to succeed. This first public announcement should include a simple outline of what is known and assumed, such as the source of the disease, its probable mode of transmission, possible means of escaping infection, early symptoms, and proper care of the patient during the acute stage to prevent needless deform-

ity. Parents must be urged to keep their children at home. And, above all, they should be warned that a very general carrier condition develops among both adults and children, and that the adult, whose range of movement is wider than the child's, is probably the greater menace of the two. Finally, the press ought to be given daily reports on the number and location of new cases and of deaths.

This procedure is destined to encounter opposition in some quarters. There are selfish interests, often of the greatest influence, that are responsible chiefly to financial considerations. The health officer must have courage to combat them. In so doing he will be heartened by countless others, chief among them the parents of young children, who will rise up to call him blessed for his frankness. There is no doubt that such a course strengthens public confidence, both within the affected community and outside of it. The public will feel that a health department dealing thus honestly with it can be trusted in emergencies. Hysteria yields place to common sense.

As a part of this educational program, every physician who is likely to see these cases should be offered special information. Because this disease is so rarely encountered between epidemic years, it is advisable to refresh the physicians' memories on differential diagnosis, emphasizing early symptoms, and to remind them how urgent it is that prolonged support be given paralyzed extremities, and that all active local treatment be avoided until the acute stage is well passed. They can also be asked to cooperate in the control measures inaugurated by the health department. In a relatively small area, such as a county or city, the doctors may very profitably be brought together for a conference.

Since we are fairly certain that the virus of poliomyelitis is present in mouth, nasopharynx and bowel, there are definite things that may be done to cut the lines of communication between patient and outside world.

(1) Doctors, parents, teachers and others who have information, must report cases at once, whether fully diagnosed or only suspected. Of the two, the suspected case is probably of greater importance, as the patient will almost certainly be visited by his friends who "did not know it was infantile paralysis," or he may be going about with only some vague discomfort.

(2) A placard should be posted on the home of a case or of a suspected case, forbidding any unauthorized person to enter or leave.

(3) The patient must be isolated, in a separate room if possible. Isolation should continue for a minimum period of three weeks. This is probably not long enough in some instances. At least one experimental monkey retained active virus in its nasopharynx for five and one-half months after an acute attack. But most studies indicate that the virus disappears rapidly.

(4) Windows and doors should be screened against flies.

(5) All articles soiled by the patient, as well as his feces and urine, must be sterilized by suitable methods.

(6) Terminal disinfection needs to be thorough, since it appears that the virus resists drying for some time. It is, however, killed by relatively weak antiseptics².

Transmission of infection seems to be accomplished chiefly by contact with cases or carriers. There is rather convincing evidence that a fairly widespread carrier state develops during an epidemic. Mild or abortive cases are also a constant danger. It is, therefore, justifiable to maintain exceptionally rigorous control of contacts.

(1) The person who nurses an acute case should be confined as closely as possible with the patient. He must observe extraordinary care in cleansing his hands and in disinfecting his garments soiled by the patient.

(2) Other contacts, in the family or outside, should be quarantined for at least two, and preferably three, weeks. This applies in particular to those whose occupations bring them into frequent association with children. A careful search must be made by the health department to discover all persons who have been exposed.

Several measures of a general nature are warranted by our present knowledge of the disease, in addition to the giving of full publicity already mentioned.

(1) Since, as a rule, ninety-five per cent of cases occur in children ten years old or under, public gatherings of all kinds should be closed to them. It is safer to fix the age limit at twelve years.

(2) Should the schools be closed? The answer depends upon the available quality and quantity of health supervision. In a remote rural school, without public health nursing service and under a part-time health officer, it would be best to close school, providing the children do not have opportunities to congregate elsewhere. This latter point would be determined by the concentration of population and habits of travel. On the other hand, if a reasonably adequate medical and nursing staff can be provided, it is better to keep schools open.

(a) Every teacher should be instructed to watch for any signs of slight illness, or even listlessness, among her pupils, and to send such children directly home. She should then report immediately to the school physician or nurse, or to the health officer.

(b) Daily inspection of all school children should be made by physician or nurse and any suspects excluded at once.

(c) Suspects who are sent home, and all other absentees, should be visited by the nurse. If these children appear to be sick, the parents ought to be told to keep them home for at least three days' observation. A physician or nurse should see them daily.

(d) Reports of these excluded children should be made to the health officer by the school authorities, if he is not in charge of school inspections. He is then in position to enforce the three-day observation period and make prompt diagnoses.

(3) Other public gatherings of children might possibly be permitted under exactly similar conditions, provided the medical and nursing personnel were selected and controlled entirely by the health officer.

(4) During an outbreak, special attention should be given to enforcing laws forbidding the use of common drinking cups and those requiring sterilization of eating and drinking utensils used in public places. Incidentally, many so-called "sanitary" drinking fountains are sanitary illusions.

(5) While milk is not a usual vehicle of infection, it has been given credit for three outbreaks³. The health officer should see that dairymen report to him, at once, illness of any nature occurring among those who handle the milk or utensils.

(6) A vaccine has been produced and tried experimentally on monkeys, but little is claimed for it as yet⁴. The method of making it is similar to Semple's procedure for antirabic vaccine.

(7) Since weak antiseptics kill the virus, it has been suggested that nose and throat sprays could be used for preventing infection. However, Amos and Taylor⁵ showed that the normal nasopharyngeal secretions

neutralize the virus. Spraying would seem to alter secretions and thus remove what little natural protection we have. Our knowledge on this point is so meagre that it is advisable to oppose the use of sprays at present.

(8) Various sera have been advocated for mitigating the severity of the acute symptoms or preventing paralysis. The use of these in unskilled hands is fraught with danger and there is no agreement among the authorities as to their actual value. Only with this understanding should they be used.

PREVENTION AND AFTER-CARE OF PARALYSES

At the outset, it was said that a health department is under some obligation to give what aid it can to those who are left with paralyses following poliomyelitis. A detailed discussion of such treatment is out of place here, but general measures may be noted.

(1) The prevention of needless deformity, by the use of proper supports, should be constantly emphasized, because it is so often overlooked. It is really amazing to find how many physicians ignore even the simple precaution of supporting a paralyzed foot, during the acute stage, and thereby permit a drop to develop that need never have occurred.

(2) A health department that has sufficient funds should provide orthopedic consultation for the physicians in its territory, during the outbreak and afterwards.

(3) Much good can be done by the employment of well trained physiotherapy aides. Their services should be made freely available to all patients, under supervision

of the attending physicians. These aides will usually have to be imported for service in rural communities.

(4) A few states have provided traveling clinics with a minimum personnel of an orthopedist and one or two physiotherapists.

(5) Permanent clinics are maintained in some of the large cities. It is also gratifying to note that California is planning something of the same sort for groups of rural communities.

(6) Financial aid for many victims will be needed, to provide transportation, hospitalization, surgical care and braces.

NEW MEXICO'S EXPERIENCE IN 1927

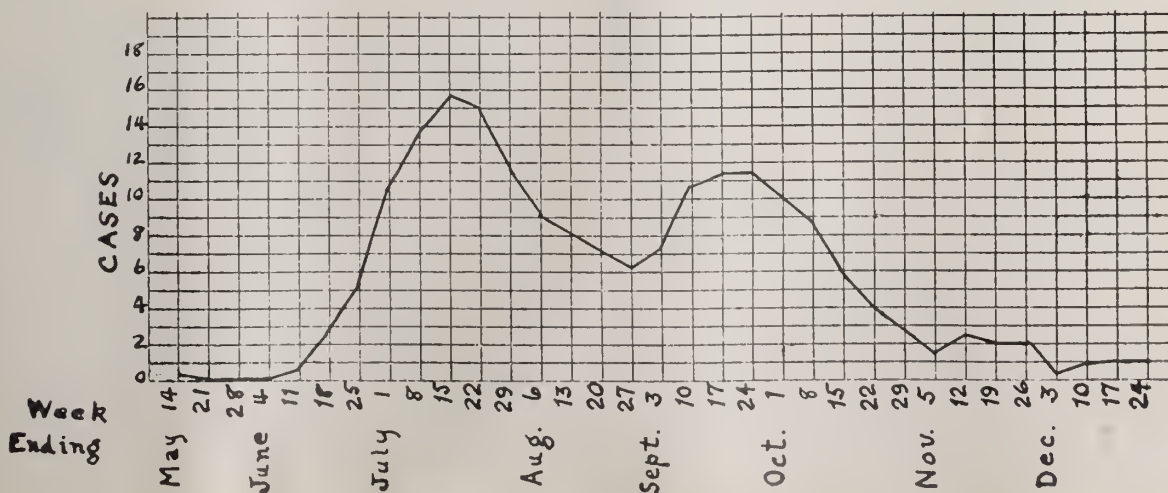
In conclusion, a brief summary of New Mexico's experience with the 1927 outbreak of poliomyelitis may be of interest.

From January through June 25th, six cases had been reported. In the week ending July 1, ten cases appeared and, in the next two weeks, eleven and twenty-three respectively. This last was the highest number reported for any one week.

A total of 196 cases were recorded from June 15th until the end of the year. (See chart 1.)

Unlike most of the reported outbreaks, this one appeared in two distinct waves. When the first one had dwindled to three cases, in the week ending September 10th, the Bureau of Health assured the public, prematurely, that danger was over. The next week, eleven cases developed, and nineteen the week following. It was four weeks later that the number began to diminish rapidly. Occasional cases still appear and one death occurred on March 27, 1928.

CHART I.
Poliomyelitis (Acute Ant.)
Weekly Totals of Cases Reported to New Mexico State
Bureau of Public Health in 8 Months of 1927,
by Date of Onset.
(Moving Average, 3 Weeks)



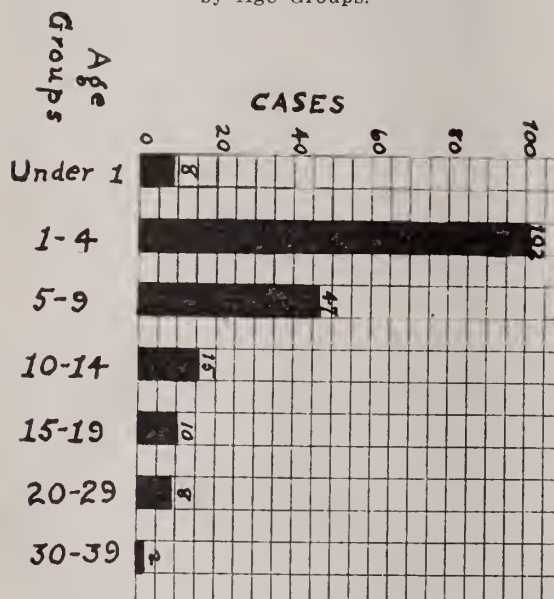
TABLE

Cases of Poliomyelitis (Acute Ant.) Reported to New Mexico State Bureau of Public Health in 1927, by Age and Sex.

	Under 1 yr.	1-4	5-9	10-14	15-19	20-29	30-39	Not Given	Total
Male -	6	50	23	8	6	5			98
Female	2	52	24	7	4	3	2		94
Not Given -								8	8
Totals -	8	102	47	15	10	8	2	8	200

CHART II.

Poliomyelitis (Acute Ant.)
Cases Reported to New Mexico State
Bureau of Public Health in 1927,
by Age Groups.



A striking feature of this epidemic was the concentration of cases in the eastern half of the State. Only twelve per cent were reported from the western half.

Age distribution of patients was somewhat unusual. Those under ten years represented eighty-two per cent of ages recorded, as compared with the average of ninety-five per cent. Over half the cases were one year old and under five. (See Table and chart 2.)

Of the 196 reported cases, four were Indian, one Negro, and the remainder white.

Thirty deaths were reported during the epidemic, but the certificates have not been tabulated, as yet, so that the exact number is still unknown at this writing.

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THE CONTRIBUTION OF PSYCHIATRY TO MEDICINE

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Read before the New Mexico Medical Society, at its forty-sixth Annual Meeting, Albuquerque, N. M., May 10 to 12, 1928.

It is now generally admitted that there should be a closer association between psychiatry and general medicine than has heretofore been the case. Psychiatrists have long conceded that it is impossible to do justice to the study of a mental case without first subjecting the patient to a complete examination from the standpoint of the internist, but the fact that the symptoms of diseases ordinarily considered outside the realm of the psychiatrist may be due to, or aggravated by, mental causes, has not been fully recognized.

No longer can psychiatry be considered as the exclusive province of the institutional worker, although the latter is, of course, better fitted by experience to cope with its problems. May¹ believes that psychiatry merits more attention from the general practitioner than it has heretofore received and that it is of great importance to every member of the medical profession. Fortunately, this specialty is now an essential part of the curriculum of the highest types of medical schools and the majority of state boards of medical examiners require a knowledge of it.

The pathology of mental diseases has thrown a new light on our manner of interpreting the significance of anatomic lesions found after death. Accustomed to the gross and rather obvious lesions found in such diseases as tuberculosis or cirrhosis of the liver, for example, the pathologist may be excused for acquiring rather a mechanical turn of mind with regard to the relation between the symptoms and the disturbing factor in the body.

But let us take the case of dementia precox. What disease produces more striking abnormalities in the conduct of the patient? And yet how slight are the actual changes found in the body at necropsy in contrast with this rich symptomatology! They might almost be overlooked.

This is one of the great lessons of psychiatry to the pathologist. It proves to him that he must bring pathology out of the field of mere inspection of dead tissue and into the realm of living disturbances of function, if the nature of such obscure diseases as dementia precox and manic-depressive psychosis is to be fully explained.

Concrete contributions, too, have been

made to general pathology as a result of careful study of psychiatric material. Perhaps the most notable example is furnished by the discovery by Noguchi and Moore² in 1913 that the *spirocheta pallida* is actually present in the cerebral cortex of persons suffering from general paresis. Heretofore, the literature dealing with late syphilitic lesions had been encumbered by such words as *metasyphilis*, referring to a so-called syphilitic diathesis, and *parasyphilis*, believed to be a late auto-intoxication arising from an earlier syphilitic infection.

The work of Noguchi and Moore led to the general conception that late syphilis, wherever located, is really due to the presence of the *spirochetæ pallidæ* in the lesions. This was a real contribution to general pathology.

Psychiatry deals with personality, a subject which has hitherto been greatly neglected in general medicine. In fact, it is only within comparatively recent years that the importance of gaging our treatment according to the mental peculiarities of individual patients has been fully appreciated.

In his evaluation of a given case, the psychiatrist, by habit and training, at once endeavors to ascertain the peculiar personality habits of his patient; for all of us, normal and abnormal alike, have certain dominant mental traits by which we can be roughly classified in one or another personality group.

The psychiatrist may find his patient reticent, unsociable and seclusive; disinclined to associate with his fellow-creatures and unduly shy in accepting introductions, particularly to persons of the opposite sex; disinterested in ordinary sports, games and recreations but fond of loneliness and day dreaming. This is the shut-in personality—a tendency to live in a world of fancies rather than facts.

This does not necessarily mean that the patient has dementia precox, although the shut-in personality is so characteristic a feature of this psychosis; for psychiatry today deals not only with the existing psychoses but more particularly with the dangerous types of mental habits that lead to them. And the shut-in personality is in itself a pernicious mental habit, or rather group of habits, requiring careful psychotherapeutic handling if eventual disaster is to be prevented.

The patient may be subject to moods, spells of temperamental instability, or periodic alterations of feeling or consciousness. Without apparent cause, he may suddenly become irritable, quarrelsome or even obstreperous. Sometimes these intervals of

altered personality culminate in a frank epileptic convulsion; sometimes they do not. But, in either case, the psychiatrist recognizes the undeniable features of the epileptic personality.

These are but two of the many abnormal personality types which the psychiatrist encounters frequently in his studies. There are many more, which need not be described here. But the question that naturally comes to mind is, "How can a knowledge of the personality types help the general physician in his plan of diagnosis and treatment?"

The answer is that symptoms, particularly one's evaluation of them, and even physical expressions of disease, may be influenced more by personality type and psychologic troubles than has hitherto been suspected. Indeed, in some cases, the entire symptom-complex of physical disease is created by troubles that amount to nothing more than the patient's failure to adjust himself mentally to disturbing factors in his environment. When the source of distress or worry is removed, the symptoms promptly disappear.

This aspect of psychiatry teaches the general physician, and particularly the surgeon, not to interpret the symptoms of physical disease too literally; otherwise, there will be much misdirected therapy and many needless operations.

J. Ramsay Hunt³ states that many disorders which the physician is called upon to treat are purely psychic, while many others result from psychic influences. In the last analysis the burden of all disease of whatever nature is borne by the mind.

Emotional states producing physiologic effects may lead to symptoms which are incorrectly interpreted as bodily defects. Foster⁴ cites the case of a woman who suddenly discovered her husband in familiar company with another woman. Naturally the circumstances caused tremendous emotion. Then she began to suffer from cardiac symptoms and believed that she had heart disease. But physical examination was negative and a detailed personal history fully explained the symptoms as of psychologic origin.

Woodyatt⁵ states that he has seen a number of patients who were operated on once or twice, sometimes oftener, for symptoms which were really of emotional origin; that these patients were examined carefully, so far as their physical condition was concerned, in some of the leading clinics of the country, but that neuropsychiatric examination was not included in the investigation. He relates the case of a man with an attack of acute abdominal pain strongly suggest-

ing obstruction of the large intestine, who narrowly escaped an unnecessary laparotomy. Repeated fluoroscopy demonstrated that the trouble was due to spasm of the sigmoid. And psychiatric examination into the patient's personal affairs fully explained how his emotional conflicts brought about the temporary spasm of the musculature of the bowel.

There is no sharp division between patients who require a neuropsychiatric examination and those who do not. As Woodyatt aptly puts it, "All men, normal or sick, have emotions and emotional conflicts, and all are affected physically by them."

There is a definite personality type, the invalid personality, for which surgery is directly responsible. Few of us stop to realize what a luxury an operation may be to a person who craves sympathy. Perhaps the husband has become unduly engrossed in his business affairs and consequently unsympathetic. Then, when he is suddenly confronted with the fact that his wife must have an operation, he showers her with every kindness. Flowers, gifts, endearments and daily visits to the hospital follow. These attentions are naturally very gratifying, and the result is that the patient, in her hunger for continued sympathy, unconsciously refuses to relinquish her symptoms. The operation, with all the sympathy that it evoked, has given her an "invalid neurosis."

The mimicry of physical disease by psychoneurotic types extends to all branches of medicine. According to McLester⁶, "one-third of the patients who come to the consultant because of digestive complaints, are of the psychoneurotic type." Even in dermatology, the importance of psychopathology has been recognized. Klauder⁷ states that "a psychic cause of such common skin diseases as pruritus and urticaria should be included among the many causes of these diseases."

Long-continued treatments alone, especially when they are unnecessary, tend to create psychoneurotic types. Neilson⁸ believes that many psychoneurotic patients are made by multiple consultations and "chronic therapy"; that daily or tri-weekly nose and throat treatments extending over months or even years, are bound to have a bad psychologic effect; and that the nervous symptoms, which are frequently attributed to the disease itself, are often the result of failure to understand the natural fears and emotions of the patient incidental to the medical consultation.

A discussion of the contributions of psychiatry to medicine would not be complete without mention of psycho-analysis. While it must be admitted that harm has been

done by the work of poorly qualified psychoanalysts and that efforts to extend the Freudian doctrine to all domains of medicine are not legitimate, we cannot gainsay the truth that thorough investigation of the unconscious has done much to enable us to understand the nature of the psychoneuroses and neuroses and has given us a valuable instrument for their treatment.

A psycho-analysis is an elaborate form of treatment. Six months or more may be required for the management of a single case. And any attempt to conduct a psycho-analysis hurriedly or in a slipshod manner is likely to lead to mental disaster for the patient.

It is for this reason that I believe greater advantage should be taken of the method of thoroughly analyzing the **conscious** state. While it is not nearly so difficult or time-consuming, or dangerous to the patient in event of failure, analysis of the conscious state nevertheless yields valuable diagnostic information. And it is also a most useful psychotherapeutic aid, for it is well known that a person who can be made "to talk his troubles and worries out of his system" is greatly benefited thereby.

I believe that psycho-analysis should be reserved for the more severe and refractory cases of frank psychoneuroses and that the average case will respond quite favorably to careful analysis of the conscious state and the mental abreaction which this procedure brings about.

CONCLUSIONS

1. General medicine has profited greatly by the contributions of psychiatry.
2. Psychiatry has given a new point of view to pathology: it has emphasized the need of correlating whatever meager lesions may be found at necropsy with functional changes observed during life.
3. Internist, surgeon and general physician alike, may derive much aid from a knowledge of the personality types of their patients.
4. Thorough study of the psychologic make-up and personal factors in the individual history will avoid much mis-directed therapy and many needless operations.
5. In many neurotic and psychoneurotic conditions thorough analysis of the conscious state proves more practicable and safer than psycho-analysis.

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MANAGEMENT OF SQUINT IN CHILDREN

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and

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(Read before the El Paso County Medical Society, El Paso, Texas, May 14, 1928.)

The correction of squint or "cross-eye" in a child, aside from its cosmetic and resultant psychologic aspect, is of prime importance from the standpoint of the conservation of vision. As Priestly Smith said, the advice "to wait and see," frequently given the family when a child begins to squint, too often means waiting and not seeing. Much can be done by early intelligent management of such a case, both in regard to conserving vision and minimizing the cosmetic defect.

The importance of early attention to squint is not appreciated by the laity, nor is it generally impressed upon them by the family physician. Each case must be treated individually, depending on its etiology. When we begin to investigate this phase of the subject we are bewildered by the multitude and elusive factors entering into every case. We come to appreciate that the normal condition of simultaneous use of our eyes involves an intricate, marvelously coordinated, neuromuscular action, details of its varied reflex arcs still being uncertain.

The essential cause of squint lies in the central nervous system but peripheral influences usually precede, throwing the central mechanism out of balance.

For practical purposes, squint may be classified as (1) paralytic; and (2) comitant, or true squint. In comitant squint, in contrast to paralytic, we have, at least at the onset, normal muscle and nerve pathways.

Paralytic squint is generally noted in the first few months of life. It is due to congenital weakness of one or more eye muscles from lesions in the cortex, association centers nuclei, basis cranial, or in the orbit. Occasionally we have congenital absence or anomalous attachment, of a muscle. Para-

lytic squint, therefore, is normally due to injury or disease.

Comitant squint may develop independently of disease or injury. It may further be subdivided into the convergent type and divergent type. Ordinary convergent strabismus develops between the first and fourth years of age, when accurate attempts at fixation begin. Divergent squint usually develops later in childhood or early youth. There are certain factors which favor the development of comitant squint. One of the most important in children is refractive error. In other words, the eye is not congenitally a perfect camera or optical instrument.

As a concrete example, take a child who has a high degree of hyperopia or astigmatism. The pictures taken by this optical camera are blurred and out of focus. The child attempts to see and frequently does see clearly by over-exerting his accommodation. This automatically results in over, or excessive, convergence, the two actions being closely associated in the same reflex action. The excessive convergence may result in periodic or constant crossing of the eyes.

Another condition favoring the development of true squint, where the refraction is normal or nearly so, may occur when the accommodation is weakened, as frequently happens from any debilitating disease. In this condition excessive nervous innervation is required by ordinary accommodation. This excessive nervous innervation of accommodation results in excessive convergence innervation and squint. We, therefore, frequently get the history that the child's eyes were perfectly straight until after measles, flu, or scarlet fever, etc.

Still another factor favoring squint development is where the vision in one or both eyes is rendered obscure or difficult by opacities in the cornea, lens media, or fundus. The child attempts, as in refractive errors, to overcome the difficulty by excessive accommodation. Still another factor is lack of fusion sense, which may be absent or weak, just as we have color blindness. The eyes have no incentive to fuse images and hold in line.

Squint, in all these cases, usually occurs only at times, especially when looking at close objects, and may be absent for distance. It is only periodic. However, following Sherrington's law that excessive stimulation of the center for one movement produces an inhibition of the center for the opposing movement, we soon have added to our convergence excess, a divergence making it increasingly difficult for the child to hold its eyes in line.

Added to this, it is quite certain that when a child sees double, as in the adult, it causes confusion and considerable subjective disturbance. It is, therefore, in the child's interest from the standpoint of clarity of vision, to make the periodic squint which it cannot prevent, a constant squint in the first place, and, in the second place, increase the squint so as to separate the double images as far as possible, so that one image may be readily neglected. Having separated the images widely the child then develops the mental habit of suppressing or disregarding one image, much as we do voluntarily on sighting through a microscope with both eyes open. By this method the child secures single vision and it soon becomes impossible to elicit the history of double vision and it can be actually demonstrated only by complicated tests.

This mental habit of suppression or disuse results in rapid and permanent loss of acuity of vision in the eye and, once firmly established, even though the squint is corrected later, the eye remains sightless. Anatomically the eye-ball, retina and fundus are normal. The condition is known as amblyopia exanopsia. The opposite condition exists in myopia, or near-sightedness. The child does not need to use any accommodation to see close objects and develops thereby a divergence excess and finally a divergent squint.

While the above are factors favoring the development of squint, we have opposed to them the natural desire for single vision, the congenital faculty whereby we fuse the images seen by each eye separately into one clear binocular stereoscopic picture and which gives us, in addition to clarity, a sense of depth perception.

The management of any squint case, therefore, involves a careful diagnosis as to the cause, a check of the nervous system from cortex to periphery for congenital defects, injuries and disease, a study of the muscles themselves for absence, anomalous attachment or development and, finally, a thorough examination of the eye-ball itself for congenital, acquired defects and refractive errors with all its complicated problems of physics, physiology of accommodation, convergence, conjugated deviation, fusion faculty, binocular vision, etc.

It is no wonder we have hundreds of methods of treatment based on varied principles. We can appreciate why no one method can possibly be applied to all cases successfully.

I shall only outline a few methods we have found of value in a majority of the usual cases, remembering that the development of squint in a child generally means a combin-

ation of many factors favoring it, as opposed to the factors favoring simultaneous use of our eyes.

We must prevent obscurity of vision due to scars and opacities in the cornea, lens, media and fundus, so far as possible. The care of the eyes begins at birth. The Crede method avoids sight-depleting scars which later may lead to squint; congenital cataracts may be needled and absorbed, saving the eye from disuse and possible squint.

Prophylactic medicine is the medicine of today. Worth has demonstrated that squint can be prevented and successfully treated under the age of five or six years. It is much more frequently successful than treatment in later life.

Most important in the management of squint, is the optical correction of any refractive error. Worth maintains no infant is too young to wear glasses should they be required, even tying them on. It is remarkable how well they are worn.

We must prevent the loss of vision in the squinting eye from disuse. This is accomplished by occluding the "good" or fixing eye for certain periods by bandaging, frosted glass, etc. A simpler method, especially in young children, is to atropinize the fixing eye.

We attempt to train the fusion sense by the use of the stereoscope and amblyoscope. This is most successful between the third and fifth years.

Bar reading; muscle exercise with a pencil or prisms aids in establishing binocular vision.

If the squint is not corrected by the above methods, we resort to operative interference.

The above management should always be instituted first and while these methods may not succeed, they at least minimize the squint and maintain vision, leaving less to be done when it becomes necessary to resort to operation. They also are of value post-operatively.

Operation to correct squint is really a plastic operation and requires plastic sense to the highest degree. We must not only correct for a cosmetic result in any given position, but must restore, also, physiologic function. We must take into consideration not only the straightening, but also the physical condition of the muscles, because in long continued cases they may be stretched, atrophic, fibrous or hypertrophied and their post-operative function thereby influenced. Operation, therefore, must not be entered into lightly or without considerable thought and complete examination.

The indications for operation are present when all factors favoring squint have been removed as far as possible and all the above orthoptic methods have been thoroughly tried and have failed. Operation, furthermore, should not be attempted before seven years of age (alternating squint may be an exception) because there is a tendency, as development proceeds, to divergence, which accounts for some spontaneous cures.

Another advantage gained in waiting is that, in older children, it may be done under local anesthesia and our results gauged accurately on the table.

Operations are designed: (1) To weaken one muscle action, or (2) To strengthen another muscle action, or (3) Both may be combined in marked cases. Weakening a muscle action is accomplished by tenotomy. It generally gives a fifteen to twenty-five degree straightening.

There are numerous types of operation described, but all have the disadvantage that we cannot tell how far the tendon will retract before reattaching to the globe. It may even slip too far and convert one type into another. For this reason we now employ, where tenotomy is indicated, muscle recession, a recently devised technic. The muscle is thoroughly freed and cut, as in tenotomy, but the tendon stump is receded and reattached to the sclera at the desired point by a scleral stitch and anchored to the original tendon insertion.

Strengthening a muscle is accomplished by advancing its attachment further forward on the globe. This operation is generally favored over tenotomy but also has many technical disadvantages: danger of stitches slipping, etc. To overcome this situation, various forms of tucking operations have been devised to shorten, thus strengthening, the muscle. However, the operation we find of most value is actual resection of a portion of the muscle and reattaching it to the original stump. These two operations, either separately or combined, seem to us to approach more nearly physiologic conditions.

In conclusion, I wish to remind you of the importance of early attention to squint and prompt removal of all factors favoring its development.

Orthoptic exercises are of great value in minimizing the degree of squint and in retaining vision and fusion faculty before operation and in restoring function post-operatively.

Operation must not be performed too early and only after thorough study of the cause and condition of the muscles. In alternating

squint operation may be used earlier than in other types.

Of the operations for weakening muscle action, we have found muscle recession of advantage over ordinary tenotomy.

Of operations for strengthening muscle action, resection is of advantage over advancement or tucking.

TREATMENT AFTER HEMORRHOIDECTOMY

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There is a widespread idea among the laity that, after an operation for piles, the patient usually suffers the tortures of the damned. Excluding the nervous timid patient, who magnifies discomfort into pain, in a great many instances there is justification for the belief. This is usually due to faulty technic in the operation and in the after treatment.

The first essential of any hemorrhoidectomy, either by clamp and cautery or ligature, is thorough dilation of the sphincter. This is accomplished only by stretching for at least ten to fifteen minutes, until the anus is wide open. The after-pain of a hemorrhoidectomy is usually due to contractions of the sphincter pinching the raw surfaces left at operation. It was formerly the custom to insert a large tube, wrapped about with gauze and smeared with petrolatum, in the rectum, the reason given being to allow free exit for gas. This was removed in two, or three or four days with much pain and profanity on the patient's part. Fortunately for the patient, most of us have abandoned the procedure.

Hemorrhage is sometimes a complication. Some oozing is to be expected and is easily controlled by a large triangular pad applied to the anus and held in place by a T binder. Arterial hemorrhage should be sought for and ligated.

Embolism may occur as late as the eighth day after operation and may be fatal. Treatment, of course, avails nothing, but the possibility should always be borne in mind and the patient not allowed up too early.

Traumatism, coming from handling of the tissues around the anus, frequently results in edema of the urethra, with consequent inability to urinate. It may be necessary to catheterize the patient, using, where possible, a soft rubber catheter. Sometimes only a silver catheter can be passed. In either case, strictest aseptic precautions should prevail, as an attack of urethral fever, or even infection of the bladder, may be brought on by careless manipulation.

Pain is the most important symptom complained of. It is the duty of the surgeon to see that the patient is as comfortable as possible. As has been said, thorough dilation of the sphincter is an essential of a good operation and does more to allay the after-pain than any procedure. In highly nervous patients a few doses of codein are helpful.

The next thing to occupy the patient's mind is the dread of the first stool after operation. I have found that the administration of mineral oil, beginning with two tablespoonsful on the evening following the operation and repeating each night until the bowels move, gives a soft oily movement expelled without pain or damage to the raw surfaces.

In the external or thrombotic hemorrhoid, the pain after operation is not severe, but the patient may complain of discomfort. This is best relieved by hot sitz baths twice daily for twenty minutes. These also serve to check oozing and promote asepsis. In this variety of piles it is not necessary for the patient to stay in bed.

SOME INTERESTING SKIN DISEASES OBSERVED IN NATIVES OF THE TROPICS

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Every medical man practising in the tropics sooner or later becomes interested in diseases of the skin. One observes not only the cosmopolitan skin diseases, but also a host of dermatoses peculiar to a hot, moist climate, with special reference to the dermatomycoses. A recent article on this particular subject appeared in *SOUTHWESTERN MEDICINE* in February of this year.

The following cases, with the exception of case number seven, were observed by the author in the clinic of the Central Hospital Bangkok, Siam. Case number seven was seen in consultation in the Charity Hospital, New Orleans, La.

CASE I. Papillary Adenoma of the Sweat Glands

The patient, an adult male Siamese, appeared in the clinic complaining of wart-like growths (Fig. 1) covering a considerable part of the body and present for some seven years. They were painless, slow in development, and, with the exception of a large tumor on the back non-ulcerating. The patient's history was irrelevant, his Wassermann negative, and he stated that no other members of his family, immediate or remote, had suffered a similar condition. Treatment consisted of removal of all of the growths by operation, and on section they were found to be papillary adenomas of the sweat glands. This is not a common condition. Although not of a malignant character, these growths are potentially carci-

nomatous on account of the tremendous amount of epithelium found lining the dilated gland spaces.

The section (Fig. 2) is from a small nodule. In the older tumors the entire mass is made up of dilated sweat glands and many of the spaces are occupied by clusters of epithelial tissue.



Fig. 1 (Case I). Papillary adenoma of the sweat glands.



Fig. 2 (Case I). Microscopic section of papillary adenoma of the sweat glands.

CASE II. Dermatitis Cupuliformis

This is a peculiar disease first described by Castellani in 1914 and reported by him from Ceylon. It is caused by a streptococcus belonging to the erysipelatosus group and is called "Streptococcus tropi-

calis Castellani, 1914." The disease begins as a superficial, itchy, maculo-dermatitis. Gradually the spots enlarge, become infiltrated, elevated and cupoliform (Fig. 3). Eventually the nodule breaks down and there is a central ulcer. These ulcers are painful and difficult to cure. The disease lasts for as long as eight to twelve months. Treatment consists of local antiseptic applications and autogenous vaccines.



Fig. 3 (Case II). Dermatitis cupuliformis.

CASE III. Tinea Labialis

This is an interesting dermatomycosis, first described by the author as occurring in natives of Siam who chew betel-nut. The fungus may be recovered from the skin lesions and also from the betel-nut cud. It responds to the usual fungus disease treatment, if the patients will stop chewing betel-nut. It is an itchy, scaly dermatitis producing a peculiar ring-like appearance around the mouth, due to the profuse flaky desquamation (Fig. 4).



Fig. 4 (Case III). Tinea labialis in betel nut chewer.

CASE IV. Endothelial Sarcoma of the Tongue

The patient was a male Siamese who came to the clinic to secure relief from an ulcerating growth of the tongue of several years duration (Fig 5). He had postponed treatment until it was impossible for him to take food. He is an old betel-nut chewer. The entire tongue was removed, there was very little grondular involvement. On section (Fig. 6), the growth proved to be an endothelial sarcoma.



Fig. 5 (Case IV). Endothelial sarcoma of the tongue in betel nut chewer.



Fig. 6 (Case IV). Drawing of microscopic section of endothelial sarcoma shown in Fig. 5.

CASE V. Granuloma Fungoides (Fig. 7).

This was the only case of granuloma fungoides recognized during a period of ten years. It was most typical in its evolution; there were four well defined stages; dermatitis, infiltration, tumor formation and ulceration. The section shows the typical cellular infiltration (Fig. 8).



Fig. 7 (Case V.) Granuloma fungoides.

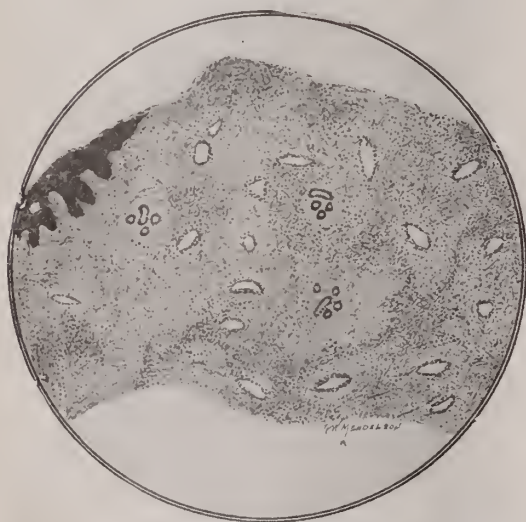


Fig. 8 (Case V.) Microscopic section of granuloma fungoides.

CASE VI. Basal Cell Carcinoma Originating in Sweat Glands.

A female Siamese complaining of a "swelling" behind one ear, following the piercing of her ears for rings. On examination, the "swelling" was found to be a firm tumor with superficial ulceration (Fig. 9). It was of several months duration, the exact time cannot be determined. On removal and section it was found to be a basal cell carcinoma originating in the sweat glands (Fig. 10).



Fig. 9 (Case VI). Basal cell carcinoma originating in sweat glands.

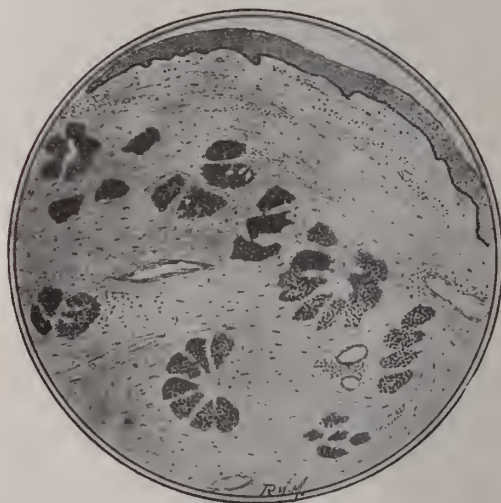


Fig. 10 (Case VI). Microscopic section from basal cell carcinoma originating in sweat glands.

CASE VII. Chronic Glanders (Fig. 11).

This case was seen in consultation in the Charity Hospital, New Orleans, La. The case had been diagnosed as syphilis and also as carcinoma. The patient had received considerable anti-syphilitic treatment and also for the supposed malignancy. The nature of the disease was suggested by the character of the lesions, the fact that all previous treatment had been of no avail, the negative blood findings and the epidemiology. This last point was of considerable value. The patient had always lived on a farm and taken care of horses. The diagnosis was confirmed by isolating the bacillus in pure culture.



Fig. 11 (Case VII). Chronic glanders, resembling malignant growth.

OPPORTUNITIES FOR POST GRADUATE STUDY IN VIENNA

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Read before the New Mexico Medical Society, at its forty-sixth Annual Meeting, Albuquerque, N. M., May 10-12, 1928.

At the present time it seems to be very popular among physicians to visit foreign clinics. They like to travel in crowds and have the clinics demonstrated to them like a Harvey Tour; witness the high pressure itinerary of The Post Graduate Assembly of America, for instance, or the annual cruises of The American College of Surgeons. And one is often asked, whether opportunities for study are better over there than ours are here in America, and whether they are more advanced in any of the fields of medicine than we are here at home. This latter question, of course, will never be settled, for among human beings, including doctors, there are always the two great classes—those who think their own the only way; and those who think that the way the other fellow does it, if it is different, must be better than our own.

Circumstances made it possible for me to go to Europe last summer, and to spend considerable time in Vienna, and I think it may be of interest to you to know just what opportunities are there for one who wishes to broaden his outlook upon the field of his chosen profession and to gather what he may that will be of service to him in his daily work.

From what little I saw, I think that general methods of procedure in surgery, at any rate, are much alike in the various countries of continental Europe, so that, if one became familiar with the clinics of Vienna, for example, he would have a pretty good idea of how the profession functions throughout most of Europe.

The disadvantage that the average American doctor labors under over there, is his inability to understand or speak any language but his own. In Vienna they have fully recognized this handicap, and have developed special courses of instruction in the University in English, so that this University is rather unique in Europe, in having courses in all branches of medicine for English-speaking physicians. These courses and their relation to the curriculum in the post-graduate school of the Medical College are arranged by the American Medical Association of Vienna. This Association is fostered by many of the leading physicians and surgeons of America and the active part of it is made up of those foreign physicians who happen to be taking work in Vienna at any particular time. Of course, its membership is not limited to Americans.

The Association has a very practical suite of rooms over the Edison Cafe in Alser Strasse, immediately across the street from the Allgemeines Krankenhaus, the largest hospital connected with the University. It has two full-time employees, both Austrians, who speak English well. The president and board of directors are elected every six months from among the membership residing in Vienna at the time, and of course, the principal officers, at least, must be men who expect to be in Vienna for six months.

When one arrives in Vienna, he registers at the Association, paying a membership fee of \$10.00, which entitles him to enroll in any of the Association courses that are offered.

These courses are short, some of them only two hours long, most of them ranging from six to twenty hours. All but a very few of them are limited as to the number of physicians permitted to take the course at any one time. This number varies from two to ten, so that each man can get a good deal of individual instruction, and there will be no question about one's ability to see, if the course is a clinic or a demonstration. This close contact is one of the attractive features of the instruction in Vienna. Even in the surgical clinics, one is allowed in the pit, where he can see at close range all that is being done. There is no aloofness, no snobishness, no better-than-thou attitude among the professors, which may be due, of course,

to the fact that it is money in the pocket to be otherwise; but that is not the only reason, for it is very apparent that many of the men are born teachers and are in love with their work.

The instructors in these courses receive five dollars an hour, United States money, and this is prorated among the men taking the course. In two men courses, one pays two dollars and fifty cents an hour for each hour of instruction; in ten men courses only fifty cents. The cost of instruction during one's stay in Vienna, therefore, will depend upon the kind and number of courses a man selects. The Association estimates the cost to be between fifty and two hundred dollars a month. Work begins at seven in the morning and continues without intermission until seven or eight at night. Besides these special courses, all members of the Association are permitted to attend the surgical clinics that are in progress at all of the various hospitals daily. There is no end of work and one can take as much or as little as he chooses.

As would be expected, some of the courses are very popular, others not so much so. And the Association rule for meeting this difficulty is to permit the men who have been longest in Vienna first chance at any course. When a course is to start, a notice is put up on the bulletin board, or any one wishing any particular course may ask to have it posted. The notice states the date of beginning, the number of hours it will run, and the number of men permitted to take it. Then men wishing to take the course sign their names to the notice, until the limit of membership is reached. The notice must remain posted for twenty-four hours after the quota has been filled. During this time, should an "old timer" wish the course, he may sign his name at the bottom of the list which automatically "bumps" the most recent arrival. After twenty-four hours, however, the course is marked "closed" and no further changes can be made in it. Under this arrangement, while one may get a great many courses at the University, during a short stay, still, if he wishes to get all that he wants, he may have to stay for some little time.

The courses and clinics that impressed me most were those in Anatomy, Cadaver Surgery, Pathology, Endocrinology, Gynecology and Fractures.

If they excell us in Europe in any of the branches of medicine, it is probably due to the stress that they place upon anatomy and pathology, and the thorough training one gets in these branches as a foundation. The Anatomical Laboratories and Museum are

housed in a very imposing building which is listed as one of the places of interest for tourists in Vienna to visit. And the sculpture and other decorations on its exterior and in the corridors speak for the high esteem in which the department is held by the State. One pays a small fee to visit the Anatomical Museum just as he does to visit the Museum of Natural History or one of the many Art Galleries of the city. And, like these, it is open to the general public.

One can get, at a very reasonable cost, whatever anatomical material he may wish for dissection and study, and he can get courses in the surgical anatomy of every part of the body, in which the demonstrator, with the aid of actual dissection, and most varied and complete mounted specimens from the museum, demonstrates every phase of the subject in hand. If one takes these courses in conjunction with cadaver surgery, in which two men work upon the fresh cadaver, under direct supervision of assistant professors of surgery in the various hospitals, getting any kind of operative procedure one may choose, there is, indeed, excellent opportunity for learning the necessary surgical anatomy and the fundamentals of operative technic and procedure.

I know of no place in America where one can study gross pathology as he can in the clinic of Professor Erdheim at the Jubiläums Hospital. This particular clinic is given in German, but the demonstrations are so clear and so painstaking that even those who know nothing of the German language take the course and say that they get a great deal out of it. To one understanding even a little German it is a mine of information, and gives one an insight into disease processes that is invaluable.

This is probably the most popular course in Vienna. It is not limited as to numbers, and is always crowded. The method of demonstration may be of interest. The Jubiläum Hospital, besides being a general hospital, has a large department for the care of old people, so that several thousands of patients are cared for there. One whole building, The Pathological Institute, is given over to Professor Erdheim. Here, under his supervision, as the autopsies are performed, all pathological organs and tissues are removed intact. This means an entire pelvis, a spinal column, a femur, a thigh with an exposed femoral artery or vein, as well as the viscera. No amount of painstaking dissection is too much to gather the whole of the pathological picture into the clinic. After removal, all specimens are placed in a large refrigerator so that, on three afternoons of

each week, there are from six to ten complete autopsies to demonstrate to the class.

At the demonstration, Professor Erdheim first reads a short synopsis of the clinical history of the case, then the clinical diagnosis; then he demonstrates the pathological findings, and correlates the symptoms with what has been found at autopsy. He is one of those rare teachers whose interest and enthusiasm in his work never falters, who makes every day's work as fresh and snappy as if it were the first time he had seen the conditions himself. His material is so abundant that he is able to demonstrate at a single clinic, or at two or three successive clinics, most of the various clinical pictures in any pathological field. In one or two clinics he would show half a dozen more or less typical cases of apoplexy with its early and late manifestations, for example; or carcinoma of the breast, its various types, modes of local and metastatic extension. One may judge of the amount of material, also, by the fact that during the few weeks while I was there, he was able to demonstrate such rare conditions as primary carcinoma of the liver; fistulas from gall-bladder into stomach, into duodenum and into the colon; infarcts into spleen, kidneys, muscles and skin from a septic thrombus in the femoral vein made possible by a patent foramen ovale; and intestinal obstruction from a large gall-stone. Also what I hope is a rare condition, a gastro-enterostomy in which the surgeon had completely closed the stoma that he had made with his sutures and the patient had starved to death with the diagnosis of persistent vomiting due to vicious circle.

Another of the very popular clinics is the one at the Unfall, or Accident, Hospital presided over by Professor Boehler. Here one sees most brilliant results in injuries of bones and joints, without special or costly apparatus. Here, for the first time, I saw fractures and dislocations reduced under local anesthesia. It is certainly a most satisfactory method, appreciated not only by many patients who dread general anesthesia, but by men who are working alone away from the facilities of a hospital. In a Pott's or Colle's fracture, for example, ten or fifteen cubic centimeters of one-half per cent novocaine, injected on either side of the limb, between the broken bone ends, will, in a few moments produce anesthesia and relaxation, so that one can manipulate the broken part, reduce the fracture, check it with the x-ray, and then do it all over again if he needs to. In the same way, the solution injected into the joint cavity, in a dislocation, will permit of reduction without

pain. The patient is comfortable, he is ambulatory, and he can be taken care of anywhere, with almost no assistance. In this day, when the automobile has required all of us to handle more and more fractures, it is a method worth knowing.

Professor Boehler does not use a great deal of diathermy, artificial light, massage and hydrotherapy in the after treatment of his fractures. He insists on a natural and comfortable position for the broken limb, and then he insists on immediate and continuous passive and active exercise of the neighboring joints, and the use of the limb in every way possible. For example, he puts a cast on a broken ankle as soon as it comes under his observation. The foot is held in slight eversion instead of inversion, because he thinks many of our notions about subsequent weak foot are all wrong. The plaster cast is placed next the skin with no protective material intervening. It is molded to the leg even with considerable pressure, so that there shall be no separation of the joint space. Over the foot it is very broad so that there shall be no crowding of the toes. Twenty-four hours later, a U-shaped steel bar is placed under the heel with the arms of the U extending up the sides of the leg, where they are incorporated in fresh plaster. Within another day or two the patient is up walking about the ward on the steel bar. And it is the use of the neighboring parts of the limb that reduces the disability and the time of complete recovery, according to Professor Boehler.

I shall mention only one other clinic, that of Professor Werner for diseases of women. Professor Werner was a former assistant of Professor Wertheim, whose name is so familiar in connection with the radical operation for carcinoma of the cervix. If refinements in surgical technic are superior to ours in America anywhere in Vienna, it is in this clinic. All procedure is absolutely systematized, and Professor Werner can remove the entire pelvic fascia, and practically all of the vagina, from above, in less time than it takes most men to do a supra-vaginal hysterectomy. The method of vaginal hysterectomy, too, looked very simple, and was certainly very rapid and could be applied to a much larger uterus than we are accustomed to see removed by this method. After opening the peritoneum between uterus and bladder, the blood supply was controlled by the use of sutures introduced with ligature carriers along both sides of the cervix. The uterus was then bisected longitudinally, and each half slipped out and removed separately.

Of course, I saw the work of Professor

Pfinsterer, who has made such a stir in this country because of his radical stomach resections for even small duodenal ulcers, which he does entirely under local and splanchnic anesthesia. Stomach resection for ulcer is quite universal on the continent, but, whatever its merits, it is not a method for the use of men doing stomach surgery occasionally in small communities. Splanchnic anesthesia, on the other hand, is worth knowing.

I visited one other clinic outside of Vienna, that will interest men doing surgery here in the Southwest particularly—the clinic of Professor Sauerbrook at the University of Munich. Unfortunately he was not at home at the time; he was attending the International Surgical Congress in South America. But I saw all of the cases of lung surgery that were in the hospital at the time; his assistant went over them, perhaps, even more completely than he would have done, and I was, indeed, much impressed with the results that he seemed to be getting in selected cases of pulmonary tuberculosis. My impression was that he extends the indications for extra pleural thoracoplasty to cases more hopeful and less far advanced than we have been accustomed to put in the group for operative treatment.

The cost of living in Vienna is cheap compared with the cost of living in American cities. One can live as well as he wishes for from \$2.50 to \$3.00 per day, and he can get along on very much less. Vienna is a beautiful old city even after the disappearance of all of its imperial splendor, full of places of historical interest and of works of art. It is situated in a beautiful mountain country, making one think of our home in parts of New Mexico. Its people are a quiet, home-loving folk, whose pleasures are simple, wholesome and healthful, such as walking, mountain climbing, sun bathing, chess playing and card playing, not to forget beer drinking. They are kind and considerate of strangers, and anyone having the time can spend a very profitable and enjoyable few months among them.

DISCUSSION

DR. O. S. FOWLER, Denver, Colo.: While Dr. Crail was reading his paper, a couple of thoughts came to me, one of which is quite pertinent to us Americans. In regard to Dr. Crail's account of the treatment of fractures of the ankle in Vienna, we, as Americans, I think, look with a good deal of admiration on the methods and technics in vogue in foreign countries, and we fail to see, sometimes, the thing that is close at hand to us. The point I want to bring out particularly, is this: Two years ago, in Pueblo, one of our rather unknown men of the State demonstrated this very thing that Dr. Crail brings back from Vienna. He had treated a man, not with a fracture at the moment, but walking around on a splint cast that carried the full weight out of the ankle. Strange to say, he could

not even get his idea published in the state journal. Now, Dr. Crail thinks well enough of it to bring it back after ten thousand miles of travel, and I dare say if he would take his same notes and say this was being done in Vienna, they would publish it in the journal and very likely practice it throughout the locality, and yet turn down their next-door neighbor who has been doing the very same thing. We fail to see the worthwhile things in our own province, but when somebody else with a wide reputation brings it out, we follow it whether it has merit or not. That is the thing we all do—admire that which comes from a distance, or which comes from a man of reputation, and forget the things our fellow practitioners bring forth.

The other point I want to make is this: I believe that too much attention is being given to anatomy and to the surgical side of pathology, when we are giving too little thought to the physiological side of pathology. It is my belief that the progress of surgery in the next decade is going to be from the side of the physiology of our patients and not from the surgical pathology, or we will treat them better from a surgical pathological standpoint if we first study them with the physiological side. What is the object or advantage of doing a brilliant operation if the patient dies, when maybe a little study would save that patient's life? We have given too much time to surgical technic and too little time to surgical physiology.

CLINIC OF HEART DISEASE

DREW LUTEN, M. D.

St. Louis, Mo.

(Held at the Hotel Dieu, El Paso, Texas, as part of the Clinical Congress of the Medical and Surgical Association of the Southwest, November 2 to 5, 1927.)

CASE I.

Patient of Dr. G. Werley.

History: Watchman, age 48, looks older; chief complaint, shortness of breath; said he had a stroke two years ago; before that, was strong all his life, never sick worth mentioning until of recent years; never had rheumatism; smokes and drinks; hearty eater. Over two years ago began being short of breath on going up hills and doctor said he had high blood pressure, followed by stroke from which he made recovery. Last August had a convulsion and became unconscious. The next morning he was better, but sore over heart and had pain in arm; was confined to the house about one week; he does not remember anything about the attack.

Wife is living and well; three children, living and well; no miscarriage, paralysis or sudden death in family. He weighs 189 pounds; five feet, eight inches in height; best weight, 220 pounds; no edema; somewhat dyspneic.

First sound at the apex is rather faint. Second aortic sound, accentuated. Blood pressure, October 29, 184/20; pulse 84.

X-ray report: Transverse diameter of heart increased; also increase of transverse diameter of aortic arch.

Wassermann negative; urine, traces of albumin, no casts.

Electrocardiogram: Inverted T wave in lead 1. Left ventricular preponderance.

DR. LUTEN: Perhaps we can treat this man as intelligently without examining him, as we could if we examined him further. We have the record of physical examination, of his heart findings, etc.

Here is a gentleman who has been under the care of a doctor quite awhile, and it would be rather difficult for him to say why.

Why does he need medical attention? He hardly stops to analyze that himself; it would be rather difficult for doctors to get his complaint right on

first examination. He should be under the care of a doctor, but what would he say when the doctor asks him, "In what way have you not felt well? In what way, now, do you not feel well?" He would answer, "short of breath." If it were not for that, he would feel pretty well. We can see that his breath is not normal, as he breaths before us.

We sometimes fail to keep in mind just what the patient expects of us. Of course, there is no obligation on the part of the doctor to give the patient what he expects. If a man went to a store to buy a necktie and liked a certain tie, the salesman might say that it does not look well with this kind of suit. The salesman gets what he thinks the man should have, rather than what he wants, but if the customer insists on that certain tie, the salesman will let him have it rather than lose a sale. Now, there is no obligation on the part of the doctor to give the kind of treatment the man wants. Just what does he expect of the doctor? What service is it, then, that we are bound to offer? Why, relief of his shortness of breath, if possible, whether it is by the means he thought should be used or not. If we see something he does not know about, that might be related to his shortness of breath, we take account of that.

But we cannot lose sight of the certain proposition that the man comes for shortness of breath. We examine him; we get his history, but we do it knowing that shortness of breath is caused by one of two things. There is something the matter with his heart; perhaps other organs too, but we feel sure there is something the matter with his heart. Does it matter very much in the proper handling of his case, as to the details about his heart? We know it is not performing its functions properly. If it were, he could not be short of breath. In other words, the shortness of breath comes from a dysfunction of the heart.

We do not know just what is the trouble with his heart. For instance, you go down the street and come to a bank that is closed. It has been open, but now it is not functioning; it has failed. You do not know what caused it to fail, whether dishonest officials, or bad loans or poor investments; all you know is that it has failed; it is not functioning. However, after examining the heart, from the data we have, whether we know all the details or not, we can give him good advice. We can test him properly; not quite so well, perhaps, as if we knew something more about him. But without knowing anything further about the heart, we feel pretty sure it is not functioning properly; so the question is, "What can we do to help him make it function better?" He knows that, if he puts an increased call on his heart, his symptoms increase. He does not realize that increased muscular activity is putting greater demands on the pump that is sending blood around. Now we have one or two things we can do for him. We can go into detail and advise him how to lessen the demands on this organ which is not functioning well, and we can do that in a way that will impress it upon him. Which is more important for this man—to write him a prescription and then see the next case, or to sit down and go over with him his own environment? Ask him in what sort of a house he lives. Does he live up stairs? Does it make him short of breath to climb stairs? Perhaps he climbs stairs six or seven times a day. At any rate, is it not important to go over with him the details of his environment and relationship to his activity and see if we cannot cut down the muscular activity involved and bring about a lessened call on this organ which is failing? While it has not yet gone out of business, is it not more important to show him how to help his case; to take some of the load off this organ; to make one or two less trips a day up stairs, or perhaps not make any trips—to show him

how details of his business (if he has some business) are likely to get him excited, or angry, or worried, and put a demand upon his heart? After all, these things are more important to him than any medicine we can give him. Is there any medicine under the sun we can expect to change his heart back to normal?

What is the matter with his heart? After all, that is a matter of secondary importance. I do not want to make any exaggerated statements, but suppose he has a mitral stenosis, aneurism, or a hypertrophied heart. We are convinced that heart is not performing its function well. Our only business is to help that man's heart perform its functions. If we do something that would assure him that his heart would pump blood properly until he was 80 or 90 years old, or as long as he wanted it to go, he would not care what heart disease he had, would he? Aside from the question of pain, all he wants from his heart is to pump blood properly. Then the thing he expects of the doctor is to get his heart to functioning better. It may be that the doctor can do that by treating his heart disease; but we can help him lessen the load on his heart. Sell him the proposition, not by saying 'don't do this and don't do that,' but by showing him how those things help, and convincing him it is worth his while to do them. Take more time to go over the details.

What is his heart disease? Dr. Werley said his heart was enlarged, second sound accentuated at base, has had a hypertension. I believe we would ordinarily say he has hypertensified heart disease, as the disease is called which we often associate with hypertension. The treatment of that disease, then, would be looking to the treatment of hypertension, or to undoing in his heart the effects of hypertension. We do not expect to do much there. Any medicine we give him, then, we must give him from one of two standpoints—to cure the heart disease, or help his heart irrespective of disease. For instance—digitalis. What does it do? In what way do we expect digitalis to lessen the enlargement of his heart, or to make it larger, to increase the amount of muscle, to act as an antitoxin to toxin that might be in his body. We expect it to help his heart do its work better. It seems to me that it will do that.

Q. Have you had swelling of the ankles at any time?

A. No sir.

Q. Have you had swelling or tenderness of the abdomen?

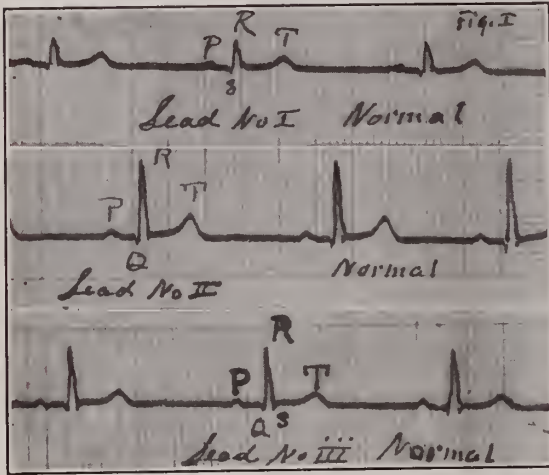
A. No sir.

Examination as follows: Heart is regular, rate perhaps slightly increased; apex is pretty well to the left with systolic murmur. Does murmur add much to the diagnosis? What is the cause a murmur? Does it mean he has some disease of the mitral valve, or possibly a dilatation of the ring, without anything the matter with the valve? In either case, do we expect medicine to do anything to the mitral ring or valve? What is the indication for digitalis? Is it that he has a mitral murmur? Is it that he has hypertensified heart disease? We are giving him digitalis for what purpose? Sometimes we do not think quite clearly enough ourselves in this situation.

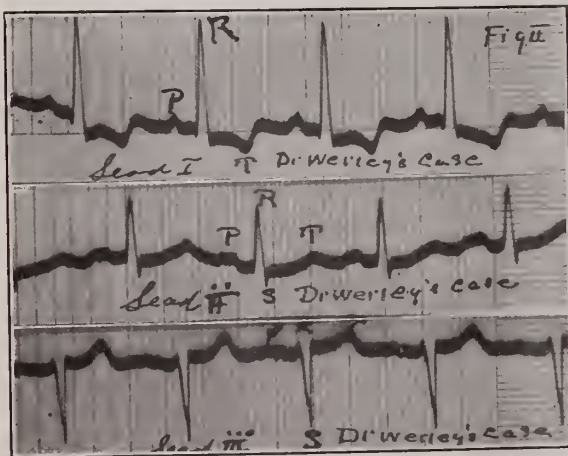
The cardiogram is one of the means of understanding better just what the situation is in the heart. People often discuss whether the cardiogram is more important than something else, or less so, or whether you can treat a person without a cardiogram. These are rather useless questions. Can you do pretty well in examining the chest without a stethoscope? Here is a man with hypertensified heart disease. I was looking for a history of coronary infarct.

DR. WERLEY: I was wondering whether, when he had the unconscious spell, he could not have had a

coronary infarct. When he came to, he said he had pain in his left arm and over his heart. It is with that kind of pain that a coronary infarct is likely to occur.



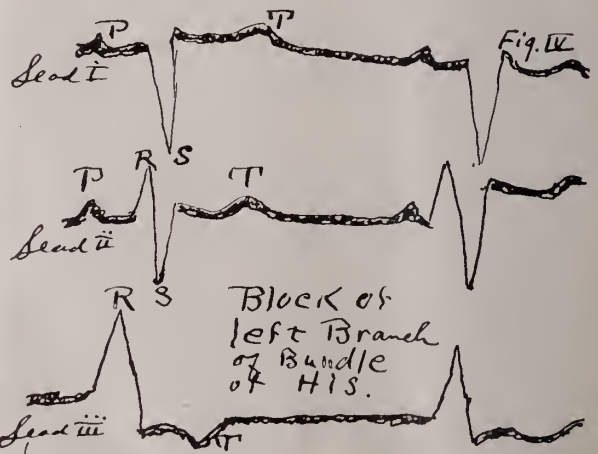
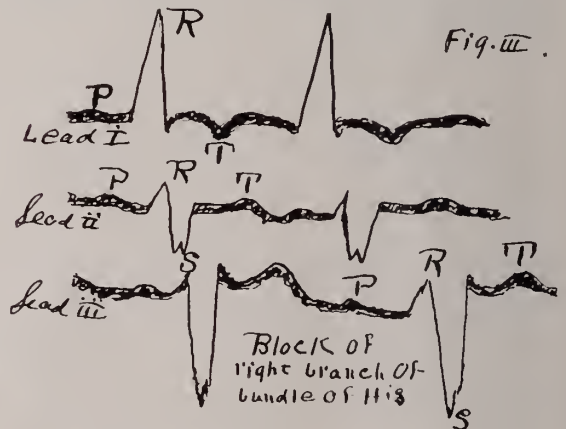
Dr. LUTEN: I agree that the history is not typical, yet the history leads to the possibility of a coronary occlusion. Whether he had or had not, we know pretty well that situation without a stethoscope. If we go over a man, and we have a cardiogram and a stethoscope and use those things we can get a pretty good idea about him without a history. What is the use of wasting time arguing which one of the methods at our hands for diagnosis is the most important? We do not want to do without any of them. The normal cardiogram is important. In the first lead in this case the wave is different. (Fig. 1). The T is inverted in lead I. There is an unright deflection of T in lead II and it is the same in lead III. What produces that? In the stringed galvanometer, when the electric current goes through the galvanometer it causes a deviation of the string when a heart muscle contracts. The electrocardiogram, then, simply means that the current has gone through the galvanometer, a picture has been made and is reproduced thereby. There must be something different here because his picture is different from that of the normal heart. Notice the difference in the T waves; there is something to cause that difference. What is it? The T wave is produced by the muscles of the ventricles of the heart. It is part of the ven-



tricular complex. Something must have been different in this case then because they give different pictures. I think we can safely say

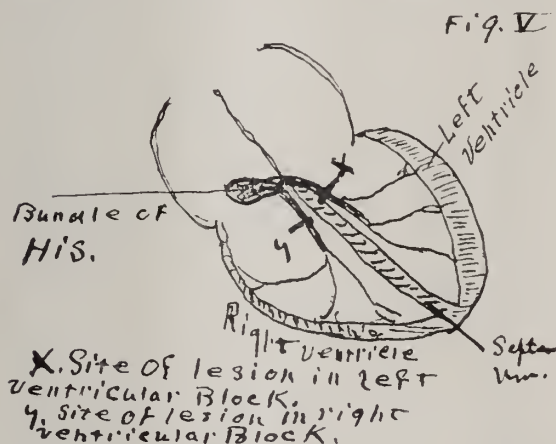
that of we had taken a record of thing gentleman ten years ago, we should have a record like the normal heart. (See Fig. I.) We do not know what it was like but there must have been sometime when he had no heart disease, and his heart was normal. Today it is different (See Fig. II). If his record has changed, something has occurred to change it. This record means a myocardial change. Dr. Werley has been interested in congenital hearts. It might not be true to say there is a congenital change. There is something different from the normal to produce a different cardiogram. The electrocardiogram is one of the means of solving the cardiac situation. The electrocardiogram records the changes in electric potential. If there were no change, there would be no movement of the string. The change in the electrocardiogram of this patient's heart shows the inverted T in lead I and opposite direction of main deflection in lead I and III. The auriculo-ventricular bundle branches off and divides into two main branches. (See Fig. V). Each branch has subdivisions, so that, when the impulse comes from the auricle, this impulse is delivered to all parts of the ventricle at practically the same moment. Both sides contract normally almost at the same instant, all parts get the impulse and the contraction is almost entirely simultaneous. Suppose there was something wrong with the tract; suppose the impulse did not get across this space at all. Then the impulse going down would not reach the right side as soon as the left (See Fig. V). If there was a right ventricle branch block, we would know that the cardiogram in such a situation in the first lead is more or less like Fig. III, Lead I, and the third lead, in such a cardiogram is more or less like this Fig. III, Lead III.

Suppose there is not a block on either side. A normal cardiogram is a composite of the electrical



forces that take place on the left side of the heart and the right side of the heart at the same time. Suppose there is a defect in one of the branches. The resulting motions will be more like Figure III, if the defect is in the right branch.

If this patient had a defect in his left branch, it would give him a cardiogram like Fig. IV. Take a patient with long standing strain on his heart muscles, hypertension ensues, probably sclerosis. Pick out patients with the two diseases and they would be a good deal alike. A patient with hypertensive heart usually has sclerosis. We are interested in this man's cardiogram, not because it suggests a defect in the right ventricle branch as it certainly does, but as a heart that must surely have defects elsewhere. Disease would not be likely to pick out one little part of his heart. I have been much impressed with the fact that a cardiogram like this patient's suggests hypertensive heart disease, and have gone over something like seventeen thousand cardiograms, picking out all like this one, and am going to see if



those patients did not have hypertensive heart disease. Has this patient hypertensive heart disease? He has a myocardial change. His treatment would seem to be mainly in taking the load off his heart, with general measures as to exercise, and digitalis to help his heart function better.

DR. WERLEY: Has the inverted T wave any prognostic significance? I have seldom seen a man with an inverted T wave live so very long. Do you find that to be true?

DR. LUTEN: That is a very hard question to answer. To my mind it is not so much that the T wave is inverted in the first lead, but that it has a sort of relationship to the third lead, with changes so extensive as to involve branches of the bundle of His. With a patient like that, it seems to me the danger is not so much that his heart is seriously affected as that he is going to overdo. We gradually show him and convince him that he must not take much activity. As long as he does that and lives within his means he will get along about as well as anybody else. But he is not going to do that. We have to keep in mind human nature. When he gets better, he is going to get out and walk around three or four blocks. He has enough reserve power to do that and he will do it some fine morning. He has in his mind the idea that he will feel much better if he gets out and walks around a little, and you cannot convince him. It is more of a trait of human nature to use up our reserve and, because a thing like that must occur, we have a bad prognosis in these cases. While I have not specific figures to say how long a man will live, certainly a man with a heart like this, and the history he has, is running on a thin margin of activity. (Note: Patient died four months later).

Case II.

Patient of Dr. Rheinheimer.

(Patient's record not submitted for publication)

DR. LUTEN: The doctor's description and the patient's appearance would indicate exophthalmic goitre rather than an abnormal heart. She has some exophthalmos, as we can see, and basal symptoms are those of exophthalmic goitre. Our problem, then, is whether that has affected her heart, and if so, how. She is going to be operated, which would certainly seem to be good treatment. One might discuss the details of that, as to whether the patient should have a preliminary rest period, etc. I rather agree with the consensus of opinion at present, which is that removal of the thyroid offers not only a removal of the cause, but is the best way of getting rid of autointoxication. Now our problem is whether that has affected her heart or not. The heart is affected by various intoxications. The question of whether thyroid intoxication affects people's hearts, and how, is one that has received a good deal of attention recently. I think most of us feel that there is a thyroid heart disease. Of course, the question is complicated a little. Any intoxication may give tachycardia; there might even be an increased respiratory rate; there might be symptoms often associated with heart disease, but when the system is free from that intoxication, there is no evidence of a permanent affection of the heart.

One question might be whether the disease has progressed so far as to interfere with cardiac function; for instance, has the patient had any signs of heart failure? I should like to emphasize again the difference between her disease and heart failure. They are not the same thing at all. That is true of any organ. A man may have a serious disease of the eye, but the function of sight has not failed, his functional test might be perfect. The importance of that disease is, however, that it might lead to impairment of the function.

Q. Have you had any swelling of the ankles at all?

A. No sir.

Q. What has bothered you? What is the thing that caused you to go to the doctor in the first place?

A. My appendix. I had an awful pain in my side and felt it was my appendix, so I went to the doctor; I did not go on account of the goitre.

Q. Had you ever been to a doctor on account of your goitre?

A. No sir, not before.

Q. You had this pain—did it last long?

A. Yes sir, it hurt me for about six weeks.

DR. LUTEN: It seems to me, as I have said before, that the doctor's obligation is not what the patient wants, or thinks he wants. The doctor's obligation is to advise the patient about any important point in connection with his condition. This lady had a pain in her side which she thought was her appendix. Without going into that at all, certainly it requires no extensive examination to make us decide that the most serious thing about her is her goitre. She rather gives us the impression of undue nervousness, though she is holding herself down pretty well.

Our question is, has this thing affected her heart, and, if so, is there anything we can do to help the cardiac situation? First, we shall try to decide whether the heart is affected or not. The evidence which has been mentioned so far seems to be thyroid intoxication rather than about her heart. The doctor says she has tachycardia. That is not necessarily a sign of heart disease.

Examination of the heart by Dr. Luten: She has a very marked sonorous arrhythmia. The rate varies: when she takes a breath it speeds up a little, and then slows down. She has a pretty loud systolic murmur. I do not detect any thrill.

The question of therapy is one I think we may differ about. This woman comes into a heart clinic; not a thyroid clinic. We all agree that she has a thyroid lesion; perhaps we will all agree that lesion is hyperthyroidism and the consensus of opinion would be that she would be better having the thyroid out. Some might differ about that. But the best evidence of the present is that the three quickest and surest way is to take the woman's thyroid out.

If we do operate and she is not one hundred per cent well in one to five years, it does not argue at all that she should not have been operated.

Now, the patient is in a heart clinic and we are discussing this thing from a different standpoint. She has a fast heart; a heart that has been kept high by thyroid disease. Has it damaged that heart? That is difficult for me to say. I think a cardiograph would be of great help in deciding whether and how much the heart has been damaged, though it would not tell the whole story. So far as therapy is concerned, the doctor has been giving her digitalis, and, though it is a customary procedure, I rather question it. Why would one give her digitalis? What purpose would he have in view? It is said that digitalis slows down the blood in children but I have never seen this happen with an adult, and I have been looking for it for a long time. It must occur sometimes because competent observers have reported it. I rather think that digitalis will not serve now, in spite of any heart disease she may have, as she certainly has none of the signs of dysfunction, or heart failure, or insufficiency. She is not particularly short of breath, has no edema. Digitalis will not counteract the effects of thyroid intoxication. Suppose the patient had an indication that the ventricle muscle was not getting the blood supplied properly, then there would be an indication for digitalis, and I am convinced it would help her. It would not help her disease, but it would do something to her ventricle to help it perform its function better, so that would be a vindication.

I have no doubt, even though these gentlemen gave her digitalis because they thought I wanted them to, whatever their feelings about the matter might be, that some of us feel differently about it. I should like to have a little discussion about the matter. Is there any considerable difference of opinion about the administration of digitalis to such a patient?

DR. WERLEY: Dr. Rheinheimer and I have had six or eight hyperthyroid cases at our clinic and we have been experimenting with iodine to see what results we would get. We have not given any of our patients digitalis; we did not think they needed it, and gave it to the patients here this morning only because you stated in your letter you would like them digitalized. If there were indications of a dilated heart, edema and dyspnea, I would give it, otherwise I would not.

DR. LUTEN: I appreciate very much your trying to follow out my suggestion. I want to clear my own skirts, however. I wrote that in cases for the clinic I would like to have those who had had digitalis and those who had not. In a patient who has any thyroid indication, digitalis is not effective in slowing the ventricle rate, even if there is a fibrillation.

THE HUMAN TONGUE AND EDEMA

O. S. FOWLER, M. D.
Denver, Colo.

(Read before the New Mexico Medical Society, at its Forty-sixth Annual Meeting, Albuquerque, N. M., May 10 to 12, 1928).

It seems quite probable that we, as a profession, are losing that keenness of observation that the old time practitioners

were reputed to have obtained; that we have become so laboratoryzed that we fail to take cognizance of the complexion and texture of the skin, the dryness or the brittleness of the nails, the lustre or lack of lustre of the eyes, the facial expression, the general appearance of the physical condition of the patient before us. We, so often, may fail to see even an Hippocratic face when we look on an extremely sick person; we regard the physician that looks at the tongue as old-fashioned and not of our day; we do not observe the appearance of the mucous membranes. We may even not see an extreme case of anemia until the laboratory report comes back a day or two later; we may not note a considerable exophthalmos or a fair-sized enlargement of the thyroid. We do not usually see a definite expression of chronic pain upon a patient's face; we pass up the facial lineation as of no importance, forgetting that the face gives expression to physical conditions as well as emotional feeling; we see without seeing, and without understanding. We probably do not evert the eyelid to estimate the anemia, though it is quite possible to estimate the hemoglobin within a few points when it is around the low points of sixty to forty. We thus pass up these little hunches that might lead us to an early diagnosis. In fact, we are probably not even as capable, in the keenness of our observation, as the average stockman, who can go into his herd and at a glance pick out a sick animal by the appearance of the coat, the dullness of the eyes, the general droopiness of the animal, its unwillingness to move about. We fail to recognize that there are certain and very marked physical expressions with certain illnesses, until those things are called to our attention by some older man who has been compelled to rely upon his acumen of observation rather than upon the more or less accurate findings of the laboratory, to which we have such easy access today and upon whose arm we rest so heavily. We too often fail to correlate symptoms we have repeatedly observed, perhaps over years.

The reason for writing this article on edema of the tongue is to call attention to some observations I have been making for a number of years; to give the results of a study of this particular symptom, to offer an explanation and give an estimation of its importance. I believe that it has not been regarded as a particular symptom.

We will consider the appearance of the human tongue under the circumstance of under-functioning of the kidneys in some type of obstruction in the urinary tract, and in what may properly be called water starvation. Years ago a patient, an old prostate

case, made the remark that his "tongue seemed too big for his mouth." In studying this tongue it did appear markedly thickened and looked too large; it was heavily coated and, most interesting, it had furrows running in various directions over the anterior part when it was flattened out by forced protrusion. I began to watch for this in other cases and, to my surprise, found it in cases of all ages and in cases that were certainly in the class of chronic uremics. I also found that this condition, though of long standing, could be made to disappear quite quickly by improving the general elimination and especially the kidney elimination. These tongues may have various appearances, being heavily coated usually. They may be beefy red or generally gray, but the one thing that was constant was that the furrows were present in all cases of this sort. The mucous membranes are usually pale and anemic, and there is usually more or less of edema of the ankles and shins. It must be that this thickened tongue is simply a further expression of the chronic edema of other parts of the body, and the thickening of the mucous membrane only corresponds to the almost certain skin changes to be found in numerous systemic diseases, which our dermatologists are skilled in interpreting.

I have found this furrowing of the tongue in cases of low-functioning kidneys of prostatic obstruction, with the same condition of ureteral obstruction, with the feeble function of contracted kidneys of interstitial nephritis. I have found it in water starvation; I have found it in asthmatics; it is to be expected in the serious infections of the kidneys, such as multiple abscess of one kidney that has stood for some days, with high temperature and poor output of the other embarrassed kidney. I have repeatedly seen it in the continued vomiting of pregnancy. I recall being called in consultation as to the need of an induced abortion in a so-called pernicious vomiting of pregnancy, in which the woman was extremely ill and most sure to die unless relief were soon given. After examining the patient I said that, by the time sufficient fluids could be gotten into her to make her relatively safe to abort, I felt she would be enough better so that she would not need an abortion. Within the next twenty-four hours, three gallons of fluids were administered by the several possible methods, and, when we met the next day, she was so much better that an abortion was quite unnecessary, and she went on to term with helpful, physiological care, without further complication.

The tongue is supplied with three kinds of papillae: posteriorly, are the circumval-

late, arranged in a large V; next in size are the fungiform, arranged quite regularly over the whole tongue and spaced a centimeter or less apart; over the whole dorsum and the sides and tip, are situated the filiform or conical papillae, which may have a single tip or a double tip. In the condition that I am describing, it is these filiform papillae that are most markedly changed from normal, though the fungiform are often greatly reddened and even angry looking. I am sure that there is a definite pathological change in these structures and it is, therefore, quite astonishing how rapidly these papillae may be restored to normal and, on the other hand, how rapidly they may take on pathology, even in a few days after an operation of importance has occurred. In fact, the tongue will give the first symptom of dehydration, acidosis and impending uremia, in the postoperative period.

It is true that the skin gives positive evidence of the functional ability of the general metabolic processes of the individual, and many times I have seen that the deeper tissues vary in their texture, apparently depending upon this same perverted general metabolism. Many operators have noticed that some old anemic people have fat that resembles chicken fat, and that their tissues are so fragile that care must be used not to tear a muscle from its attachments. It is, thus, not at all surprising that the tongue and membranes of the mouth should give very positive evidence of disturbed metabolism.

In the hope of obtaining an evaluation of this sort of tongue, I began a study of the changes in the appearance in relation to the blood chemistry, and I found that, as the chemistry of the blood improved, there was an improvement of the character of the mucous membranes, as well as of the tongue itself. There was also noted a similar improvement of the edema of the extremities, and of the texture of the skin, as well as its coloring; eyes became brighter and, in general, these patients were improved as to their entire observable appearance.

I began to attach to the appearance of a clear pink tongue an importance sufficient to form judgment whether a certain patient was in good enough condition to undergo a major operation, of whatever nature the illness may have been. I have found that a patient whose condition is so serious and acute that an immediate operation is necessary, having a heavy dry tongue, with a heavy coat which seems to almost crack when the tongue is protruded, is an extremely poor risk, and the first and most important treatment is to get large amounts

of fluids into him by mouth, bowel, under the skin or into the veins direct. Such a dehydrated patient will take and absorb very large amounts. I have many times given as much as from twelve to sixteen thousand cubic centimeters within the first twenty-four hours after operation, in one of these dehydrated patients; nor have I found that these large quantities of water do any damage to these individuals, in fact, I often wonder if there really is such a thing as "water-logging" a person from too much water alone. I offer the opinion that edema is due to too little water instead of too much water, in every instance, unless it might be in a failing heart, but I am very firmly convinced that large quantities of fluids are necessary to clear edemas of kidney origin.

Now, to get back to the tongue. We take, for example, a case of prostatic obstruction: a tongue with a thick heavy fur on the posterior part, the body of it perhaps actually thickened and anterior part dry, the filiform papillae hypertrophied, with deep furrows when the tongue is protruded. The patient's skin and hair are dry and harsh; his eyes are dull; he is so sluggish mentally that he may not even know his age or name (this is an extreme case but I have seen several such). How shall we treat this bad risk? First, it is my custom to drain the bladder suprapubically—and no other method is sufficient in my opinion—and to keep it draining until the tongue is clear as that of a healthy child. This will take from a few weeks to a few months, or even a year or more in some severe cases; but, in the meantime, we will observe that the patient has taken a general appearance of well-being, the hair and skin have lost their harshness, the eyes are bright, and he is mentally alert. In fact he is restored to about as good condition as is possible to expect or obtain in one of his years, and he is now ready to go through his prostatectomy and has a considerably higher percentage in his favor than if we had gone right ahead and operated without first having relieved his condition of what may be well called a chronic uremia.

What has just been said of the prostatic, applies equally well to any case of surgery. It is my firm belief that we hurry our patients into surgery without due preparation and as a result, we get too many post-operative complications as well as an unnecessarily high mortality; so let us take time to prepare our cases. Probably the surest way of improving our post-operative care is to do better pre-operative preparation. We certainly will escape many complications and, on the whole, will get our

patients out of the hospital earlier and with lower mortality rate.

to do with the practice of surgery? I would do with the practice of surgery? I would say that it is one of the very best indices of the patient's metabolic activity, for, when you become accustomed to the various manifestations of this organ, you will be able to run over your hospital cases or office cases and learn at a glance whether they are getting enough liquid, and liquid is the one big thing in carrying on the body metabolism. The diet is relatively unimportant for, in my opinion, it is not so much what we eat, as what we fail to eliminate, that causes many troubles. I do not say that the tongue is better than the laboratory tests, but I am sure that it is of almost equal importance when once you become skilled in its interpretation: and you do not have to wait perhaps twenty-four hours to get a report, you see it right before you and can institute treatment at once, probably averting serious complications that might develop in this twenty-four hours.

We must remember that there are two causes of poor kidney function: First, possible tissue damage to the kidney, which, I am convinced, is true in a relatively small class; second, lack of sufficient fluid to carry on this function properly. This fluid lack, alone, is the cause in probably ninety-five per cent of all cases of poor kidney function.

I realize that I may fail to convey to you my interpretation of the appearance of the tongue. It is something that we must each form for himself, and you may soon become more skilled than I; but I shall feel well repaid if I have awakened in you the thought and willingness to be called old-fashioned enough to learn how to read this barometer and thus perhaps avert severe crises that are lurking in the offing, for your patients.

DISCUSSION

DR. CRUM EPLER, Pueblo, Colo. (opening): I am glad to know that Dr. Fowler is one of the old school. However, I do not feel that he intended to make it appear that the modern physician is not cognizant of certain evidences of which he spoke as symptoms. Of course, if there is time, a surgeon should always condition his patient before surgical procedure is instituted. I do not feel that it is an emergency, in any case, simply because some other doctor may get the case away from you and you have to operate before some one else gets it. I do not feel that is an emergency—that is an operation of election. Barring the emergency, the surgeon who does not utilize every effort to condition his patients sufficiently well that he may do an operation, is derelict in his duties as much as if his technique were at fault.

In these particular cases where the tongue is the index, they are mostly uremic—they are uremic because the kidney is not putting out the amount of urine it should. The kidneys cannot function. The same thing may be true in certain types of ascites.

To properly prepare these patients, so that they are as reasonably safe operative risks as you can make them, takes time. As far as a supra-pubic drainage is concerned, it is not a serious operation. In these cases, you must water them.

In my surgical work, it is not uniformly the rule. Where the case is a semi-emergent one, I will give fluids subdermally or into the veins. You can give enough fluids to relieve, not in six or eight hours, but in the course of time, and the condition will improve, as Dr. Fowler has so nicely explained. The thing to do is to prepare your patients. There are very few of these cases that belong in the really emergent class.

DR. G. V. BRINDLEY, Temple, Texas: I think Dr. Fowler has a paper that is full of facts. He emphasized the importance of observing a patient. Observation is one of the most important points we must learn. The doctor who depends upon laboratory data alone, will never be successful. You may have an x-ray report of ulcer of the stomach, yet that may not be what is wrong with your patient.

The point about the thickened tongue, that Dr. Fowler brought out, is absolutely right. It usually means the lack of elimination and also a toxemia, but, of course, you may get it in a number of other conditions. I enjoyed the paper very much.

DR. FOWLER (closing: Thank you very much for the discussion. The point was brought out that this applies equally to the physician as to the surgeon. We are putting surgery upon a high pedestal and giving it undue importance today. The surgical stage has reached its height, in my opinion, and we must work to improve general conditions.

Do you know you can cure typhoid without a degree of temperature, with fluids? I have seen it done and have oftentimes wished I was practicing medicine instead of surgery, so as to show how a large amount of fluid will affect temperature.

This case will illustrate what I mean. A man went through the world war without injury, but, on his return from "over there," was shot by his loving wife. The bullet lodged in the pleura, and was free in the pleura cavity. The man suddenly became so valuable to her she refused to allow the surgeon to operate. That was in 1918, and, when I was called in I advised what I called an enema clamp. The man was running temperature of 103 to 104½ degrees. I thought I would see what we could do to control the temperature by fluids. If I remember correctly, 24 pints was the most I could give him, yet, by this, the temperature could be kept normal for three days at a time, and if I stopped the fluids his temperature would go up to 103 or 104 degrees. It is very important to apply fluids in case of temperature. I do not know of anything that I have done in my practice that is so interesting and so instructive as the administration of large quantities of fluids. I have found out that, in order to keep myself well, I should drink fifteen glasses of fluids a day, and I do it every day. If I should cut it down, in two days I could give myself an attack—in forty-eight hours. Every person weighing around one hundred and eighty pounds should drink fifteen glasses of liquids a day. With weight of one hundred fifteen or one hundred twenty, I should say the amount of fluids should be about nine or ten glasses. Some of this, of course, should be fruit acids, such as oranges, limes, etc. The matter of giving too much water to a patient is just an impossibility, according to my observation.

I think we will make fewer mistakes if we take a case that has been sick twenty-four to seventy-two hours, and hold him a few hours longer; you cannot make a mistake by holding him a little longer; you will lose fewer patients if you take additional time. This is an extremely interesting subject and one in which we can practice right at home, as well as in the hospitals.

IS A TENDER PALPABLE KIDNEY THE DAMAGED ONE?

(Cabot's Case No. 13215, Boston M. & S. Jour., May 26, 1927.)

Below will be found the discussions of this case, as presented by a selected team from the Maricopa County Medical Society (Phoenix) on Oct. 1, and by Group I of the Yavapai County Medical Society and Officers of U. S. Veterans Hospital at Whipple (Ariz.) on Sept. 28th. The case record was published in our September issue (q.v.).

Yuma County Medical Society

On October 9th, the Yuma County Medical Society discussed this case and have submitted their individual diagnostic conclusions as follows:

Dr. Ketcherside:—Hydronephrosis of right kidney; myocarditis.

Dr. Siberts:—Appendicitis with Abscess.

Dr. Cain:—Myocarditis and malignant tumor of right kidney.

Dr. Knotts:—Myocarditis and malignant tumor of right kidney.

Dr. Shields:—Hypernephroma of right kidney.

Dr. Reese:—Pyonephrosis with one large calculus in pelvis of right kidney; myocarditis.

Discussions by Maricopa County Medical Society

DR. ORVILLE HARRY BROWN
DR. CHARLES S. VIVIAN

(Dr. Brown)

The possibly significant points in this record are as follows: An obese white female, age 61, eighteen months before death had a fall and "heard" a snapping in her back and the next day had hematuria. Hematuria recurred at intervals and there was pain in the right side which was periodic and had a tendency to radiate up to the shoulder and downward into the hip. For a time she had frequent urination at night. Urine was "hard and sudsy." She tired and fainted easily. She had marked dyspnea on exertion. She was subject to colds and sore throats and had a "smothering sensation" in the abdomen.

The examination revealed that she weighed 165 pounds. She was dyspneic lying flat and was pale and cyanotic. Pyorrhea was extensive and there were many carious teeth. Heart rhythm was irregular and frequent (120)—and sounds were of poor quality. There was tenderness in the right costovertebral area and a suspicious mass in the right flank. The pupils were sluggish and the knee jerks were not obtained. Leucorrhea existed and there was retroversion

with cervical laceration. The urine contained albumin and blood. She had moderate fever.

In the hospital she complained of pain in the right flank, and was low spirited, exhausted and apprehensive. The day after pyelography she awakened dyspneic, thinking she was dying, with pulse 160 and respiration 48. She died inside of an hour, the second hospital day.

The outstanding points in the record are: sudden death; aggravated dyspnea; periodic or constant hematuria; suspicious mass in right flank; pain in right flank; fever; frequent pulse; right costovertebral tenderness; cyanosis; obesity. A correct diagnosis on the facts presented must be but little more than a lucky guess. The record is inadequate. We do not know how long she had been having fever and dyspnea. It is not stated what her previous weight had been or what was her height. There are no details of her fainting attacks. Presumably her bowels and digestion were good. Nothing is said as to her diet. There is no report on acetone or diacetic acid. No mention is made of the state of her arteries.

The hematuria and the costovertebral tenderness suggest kidney or ureter pathology. The fever may mean much or little and the statements in the records are not helpful. The dyspnea, cyanoses and sudden death suggest cardiac or cerebral involvement.

Cyanosis may arise from lack of aeration of the blood in the lungs, cardiac embarrassment and toxemia. Dyspnea results from pulmonary obstruction, cardiac embarrassment, medula lesions, uremia and acidosis. Sudden death may be caused by cardiac infarcts, cardiac or aneurysm rupture, intracardiac ball thrombus, infarct or hemorrhage into the medulla, poison, severe hemorrhage, etc.

There is evidence that there was no profuse hemorrhage and no pulmonary lesions. The urine reports give no suspicion of nephritis or uremia.

She had fever which indicates that she was toxic and this may explain the cyanosis. She was obese and hence we may assume a fatty acid acidosis. The cardiac irregularity and the frequent pulse may be accounted for by fatty deposits about the heart and a myocardial degeneration.

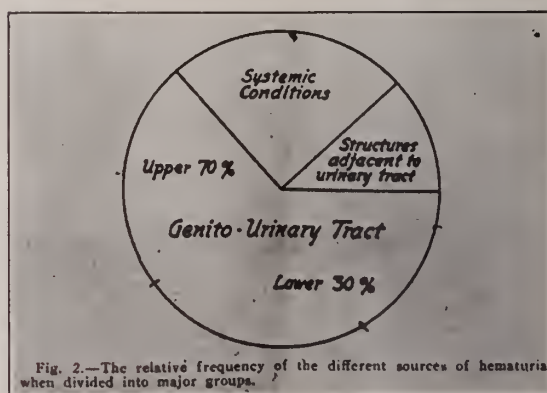
The dyspnea may be explained by a combination of acidosis and cardiac embarrassment secondary to fatty changes. There is also the suspicion that the nourishment of the medulla may have been inadequate. This would be expected especially since the pulse was as low as 90 in the hospital and she was dyspneic lying flat.

The hematuria extending over a period of 18 months points definitely to abnormality of the urinary tract. The suspected mass and the pain in the right flank might or might not have been connected with urinary tract abnormality. They might have been coexistent. We think of ovarian tumor, cecal cancer and adhesions, omental masses, appendix mass, intestinal diverticulum, bladder diverticulum, fecal masses, salpingitis, broad ligament tumor, bladder cancer, etc., to explain the mass and pain. A malignancy would have likely caused marked loss of weight and could account for the pallor.

The pallor, sluggish pupil reactions and absent patellar reflexes suggest chronic lues. The fainting mentioned in the history suggests the possibility of epilepsy. The pallor is suggestive of anemia. In most hospitals the internes pounce upon all cases of anemia with a great deal of glee and have detail studies of the blood. Since this is not reported we may argue that anemia is not likely a serious part of the picture.

(Dr. Charles S. Vivian)

The presenting symptom in this case being hematuria, it is advisable first to survey the relative frequency of the different sources of this condition. Eisendrath has shown (Fig. 1) that five-eighths of the cases of hematuria studied by him have their origin in the genito-urinary tract, while one-fourth are due to systemic conditions, and the remaining one-eighth arise from the structures adjacent to the urinary tract.



(Fig. 1)

The history of the case under discussion leaves much to be desired and in order to make it resemble a Sam Lloyd puzzle more closely the result of the cystoscopic examination is withheld. Because the cystoscopic findings are not given and because there is a questionable mass in the region of the right kidney, we may presume that the le-

sion is at that point. On the other hand the cystoscopic findings may have been negative upon which hypothesis we must consider the lesions outside the genito-urinary tract.

Of the systemic conditions which can cause hematuria, malaria, scurvy, purpura, hemophilia, syphilis and leukemia must be considered. There is nothing in the history nor physical examination to support the diagnosis of any of these conditions and we must therefore allow them to remain as possible causes. Any of them may be fatal.

Of the causes of hematuria remote from the genito-urinary tract, we must consider a variety of things. The pelvic examination being essentially negative, we may eliminate the pelvic contents as a source of the bleeding. We have, however, a history very suggestive of cardiac failure. This is well supported by the physical examination which discloses dyspnea not of renal origin, cyanosis, an irregular, rapid heart and a low blood pressure, culminating in what may well have been a cardiac death. Blood examination not having been recorded, we are again prevented from being positive and must assume that her cardiac symptoms were not due to anemia. She has not bled sufficiently to cause an anemia but her heart is said to be not enlarged; I question this finding. Assuming it to be correct, however, and assuming that the editor considers us too ignorant to look beyond the genito-urinary tract, and again reinforced by his reticence in disclosing the cystoscopic findings, we must examine the genito-urinary tract, not in the proper fashion but on paper. May I then presume upon your time to enumerate the causes of hematuria as they occur in the genito-urinary tract, from above downward (See Fig. 2). They are: nephritis, neoplasm, polycystic kidney, tu-

berculosis, other renal infection, papillitis, papilloma of the renal pelvis, angioma of papilla, pyelitis, granularis nephroptosis, stone, ureteritis granularis, neoplasms of ureter, cystitis, acute and chronic, benign and malignant neoplasm of the bladder vesicle, calculi, bladder varicosities, simple and tuberculous ulcer of the bladder, tumors, benign and malignant, adenoma of the prostate, polyps of the urethra, chronic prostatitis and vesiculitis, chronic urethritis and urethral stricture.

Her sex rules out the prostate and the vesicles. Now since we have hematuria plus a tumor mass in the right kidney region, we may rule out those conditions which do not cause tumor, namely nephritis. Any of the others may be responsible for a questionable mass in the kidney region.

None of these conditions except neoplasms of the kidney are fatal, except by hemorrhage which, in her case, was not sufficient to cause death. We may guess then, excluding everything but the genito-urinary tract that she died of a renal neoplasm. Since the commonest renal neoplasm is hypernephroma, we are sold on this diagnosis as a questionable second. May I say here that had this patient been referred to me for examination, I would have deferred cystoscopy until her heart condition had been clarified and I would have insisted upon a blood picture *certiorem facere*.

I will therefore guess:

First: A decompensated heart and infarct in the kidney.

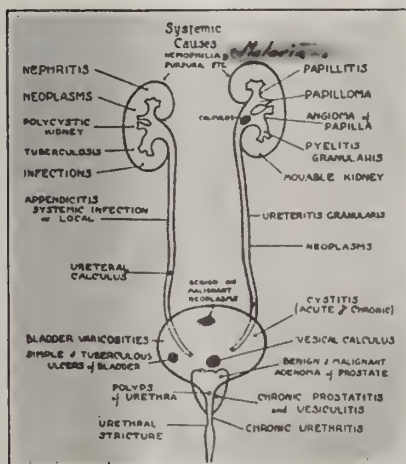
Second: A renal neoplasm most likely a hypernephroma.

SUMMARY AND CONCLUSIONS

(Dr. Brown)

Were hypernephroma present in this case and the sole cause of death, there must certainly have been metastases which should have been discovered, in the lungs, liver or elsewhere.

Cardio-vascular disease would seem to be a more probable cause of death than hypernephroma. Dyspnea is mentioned prominently in the history and without referring to any specific time of origin. Therefore, we may assume that it likely had been present a considerable period. As suggested by Dr. Vivian we may well doubt the finding of a normal size heart. In an obese woman the size of the heart is not easy to outline accurately. It is unlikely that the heart was entirely decompensated. Also if the dyspnea had persisted for a considerable period it is unlikely that the dyspnea was entirely from starvation of the medulla although this is very difficult to rule out. No mention is made of edema. In an obese woman, how-



(Fig. 2)

ever, this may have escaped detection. We can scarcely conceive that the heart could have been the cause of the dyspnea without there having been at least some edema.

We believe that the probable explanation of a major part of the symptoms of which the woman complained and died lay with the cardio-vascular system and that the cause of death may well have been a cardiac infarct from a coronary thrombosis. The great frequency of the pulse together with the woman's apprehension on the morning of her death may have come from the gradual formation of the thrombus.

**Yavapai County Medical Society and Officers
of U. S. Veterans' Hospital, Whipple,
Arizona**

DR. GAIL D. ALLEE, Whipple, Arizona
DR. C. E. YOUNT, Prescott

(Dr. Allee)

You will note in the reading of the history that hematuria is the presenting symptom. There is also record of a questionable tumor in the right flank. The patient attributed this hematuria to a fall, when she heard and felt something snap in her back. Next day she had this hematuria. I wonder if she knew what she was talking about? There are cases on record of brittle blood vessels in connection with the kidney, for example, arteriosclerosis, stone, metastatic growths in connection with the adrenals, in which a fall such as she had has ruptured a blood vessel and has caused perirenal hematoma and thus hematuria, and after existing a certain length of time has become infected and led to such a death as described. If death had occurred within a few weeks of the time the first hematuria was noticed, it might seem a possibility, but when we take into consideration the length of time in which she had many, or at least several, gross hemorrhages from the urinary tract, it certainly seems that that diagnosis would be very far fetched. It does seem, however, if we back-track this red trail of urine, we might arrive at the location of the trouble and might even name the cause of it. If we start at the lower end of the urinary tract, the urethra, we would think of new growths, urethritis or stone, but that would be easily diagnosed, following the findings of a physical examination. I don't think the trouble could have been in the bladder,—varices, stone, tuberculosis, new growths, or cystitis. All of these would cause bladder symptoms, and it is very unlikely the bladder would remain silent without having frequency, tenesmus and considerable pain. I don't think the trouble could have been in the bladder. The same could be said of the

ureters as has been said of the urethra and bladder. The ureter is not a very large tube, and new growth, stone, or tuberculosis would cause symptoms of obstruction. That leaves nothing further to consider in the urinary tract except the kidneys. No doubt the blood did come from the kidney. The diseases and pathological conditions that can cause blood in the urine, both microscopic and gross blood, are almost legion. Of the general diseases we should mention malaria,—but there is no history suggestive of this disease; that is also true so far as typhoid, typhus, etc., are concerned. There are three diseases of the nervous system that sometimes cause hematuria. They are multiple neuritis, tabes and hysteria. There is nothing in the history to support a diagnosis of either of these. The only thing that hints at symptoms of a nervous disorder is the absence of knee jerks, which they were not able to obtain even after reinforcement. But when we consider that this woman, at the time knee jerks were absent, was within twenty-four hours of death, with a history of extreme prostration, it is a much more reasonable explanation of the loss of knee jerks to lay it on to her dying condition, than any organic trouble with the nervous system. Other diseases to be considered are the hemorrhagic diseases, such as hemophilia, which is ruled out by her sex; scurvy, purpura and others, but there is nothing in the history to indicate these. Then there are syphilis and tuberculosis. In syphilis we should have had some sign of the disease in another portion of the body; we also have no evidence of arteriosclerosis, in fact the history speaks of pulse and arteries as normal, which seems to rule out any syphilitic condition. Against tuberculosis the argument would be somewhat similar; we should have evidence of tuberculosis some place else in the body, probably involving the bladder, with a great many bladder symptoms. It seems impossible that she could have had tuberculosis involvement and not lose weight or present evidence of sepsis or intoxication. There are various drugs which cause hematuria, but there is nothing in the history to indicate that she was taking any drug like cantharides or turpentine. Duke mentions the fact that food intoxications have caused abdominal symptoms and there have even been laparotomies done in which nothing was found, and that these food intoxications were accompanied by hematuria. That would be a very far fetched diagnosis and would not explain the probable tumor this woman had. Now when we consider that this woman showed evidence of great prostration, that she had a feeling in the epigastrium,

of exhaustion and choking and fainted easily, we must confess that the blood diseases, the anemias and leukemias would make a very attractive diagnosis, and would explain very nicely the symptoms this woman had,—the terminal fever and the rather rapid death,—but they do not explain the probable tumor. If the tumor were on the left side we might associate it with the spleen, but being on the right side, it seems to be something else than an enlarged spleen. And, in addition, we have no mention of a blood picture. I do not think we are justified in any way tying her trouble and death to any of the primary blood diseases. Nephritis is often a cause of hematuria, especially chronic nephritis, but that in our case should be ruled out because there is no arteriosclerosis, no high blood pressure and no hypertrophy of the heart. Stone in the kidney is one of the most frequent causes of hematuria. In this case we have very little evidence of pyelitis. We have no evidence of obstruction. The stone should not have caused her death without obstruction or without pyelitis, or without abscess, and it should not, or could not, cause the tumor that she presumably had. Varices can cause hemorrhage, but they should not cause death and could not cause tumor. In connection with gross hematuria, we should always think of polycystic kidneys. Cystic kidneys always travel in pairs and this woman only had the one tumor on the right side. Cystic kidneys cause death because of lack of enough normal kidney tissue to carry on and we should have had evidence of arteriosclerosis, high blood pressure, enlarged heart and uremic symptoms which we do not have. I think the question should be asked, whether it is possible in this history to find evidence of any other diseased organ that could secondarily affect the kidney. There is no other organ mentioned in the history except that there is an abnormal discharge from the uterus, which is not spoken of as a bloody discharge, but merely as a discharge from the uterus. That is abnormal in a woman of her age, but there is nothing to indicate the presence of carcinoma which, by its secondary effects, due to metastases, might affect the kidney. It is much more likely that if carcinoma really exists, that it is not in the uterus, and that the pressure on the blood vessels supplying the uterus is probably the explanation of the uterine discharge. Everything else having been considered, we come to the most probable cause of hematuria in people of her age, and that is tumor of the kidney. Tumors may be benign or malignant. Benign tumors seldom grow to such a size that they can be felt, espe-

cially in an obese woman such as this patient seems to have been. Also they are not so apt as the malignant ones to cause hemorrhages, although they can and do, but it is rather difficult to see how a benign tumor could have caused her death with as little hemorrhage as she seems to have had. It is much more probable that if she had a tumor of the kidney, and we think that she did, that it was one of the malignant type,—carcinoma, sarcoma, or hypernephroma. Hypernephroma, on account of being much more frequent than the other two, is our choice of the character of tumor which caused this woman's death. The hypernephroma would explain her symptoms very well; it would explain the tumor mass which is presumably in the right flank; it would explain the probable anemia that she had, and, more than that, it would explain better than anything else a condition that could last for one year and a half and still not cause emaciation. This woman died with all her flesh, according to this history.

I am authorized by our group to make that diagnosis, hypernephroma, as the cause of this woman's death. My colleague, Dr. Yount, will follow with a detailed discussion of hypernephroma and will demonstrate that our diagnosis is a reasonable one and that our conclusions are justified by the history and findings in this case.

(Dr. Yount)

We have tried to make a proper evaluation of the symptoms given in the history, and I will now set forth our reasons for making a diagnosis of hypernephroma in this case.

As far as the patient was concerned, she had a distinct recollection, following a fall, of a snapping in the neck, and there existed a frank hematuria. Keyes tells us that there is not very much value in trauma as a cause of renal tumors and he goes on to say that nephritis, suppuration and stone are really only accidental and secondary in renal tumors. Coming to the most important or cardinal symptoms,—hematuria, first noted by the patient following a fall, and recurring throughout the eighteen months which she lived following notice of this hematuria.

We find that such authors as Braasch, Albarran, Block, Young, Davis and Keyes all give hematuria first place in prominence as a symptom of tumor of the kidney. In 1913 Braasch published his classic entitled "Clinical Data on Malignant Tumors of the Kidney" based on a study of 83 tumors of the kidney considered at the Mayo Clinic. Since that time, fifteen years have passed and

that paper still remains a classic. A postulate which he gave us at that time has withstood the test of fifteen years urological progress: "Given a clinical picture of a palpable tumor in the region of the kidney, hemorrhagic urine, persistent pain referred to this region, and the general symptoms of malignancy, the diagnosis of malignant tumor in the majority of cases will be found correct." Albarran found hematuria the first symptom in 50 per cent of cases and during the course of disease in 90 per cent. In a total group these per cents vary anywhere from 36 per cent by Braasch, as first symptom, to 90 or 92 per cent hematuria appearing in kidney tumor cases. Dr. Vivian, who read a paper on hypernephroma in 1925, reviewing data of Smith and Shoemaker, Massachusetts General Hospital, of 62 cases reported, naively remarks, "These very surprising figures (53 per cent hematuria) would lead one to believe that hematuria, which has always been considered one of the cardinal symptoms, is not as frequent as we would suppose." Braasch tells us that hematuria prolonged over a period of several weeks or months, occurring at long intervals, is suggestive of essential hematuria; when it continues but a day or two or reappears at short and irregular intervals, it indicates renal tumor. He is emphatic that every one of these bleedings be traced to its source. He also says it would be conservative to assume every case one of malignancy until the hemorrhage is run down and proved otherwise. Young, speaking along the same lines, says we must determine the cause of hemorrhage regardless of the cost. As to the severity of the hemorrhage; there is no history of it being in this case severe, but it has been so severe as to cause anemia, or to require immediate nephrectomy to stop the bleeding.

The next symptom, and a cardinal one, is the matter of tumor, and here again these urologists differ in their percentage results, but most of them find tumor. Braasch says tumor was palpable in 78 per cent, Young 30 per cent of cases. The latter tells how difficult it is in hypernephroma and similar tumors to outline the kidney, giving the anatomical location as the explanation. Braasch gives five rules to differentiate the kidney in palpation, helpful in diagnosing it from other tumors in this region. It is surprising to note when you cut down on a very small kidney, how large it is when you get there. It is also true that the hypernephroma type causes death by metastases many times before attaining great size, in fore attaining great size by metastases, in sharp contrast to the embryonic type found in children.

Pain is the third cardinal symptom. There is the renal colic type due to some obstruction of drainage of the pelvis, probably blood clot, and there is diffuse pain which sometimes makes it difficult to distinguish which side is involved. There is also fixed or constant pain; but we have pain. According to Young at least one-third of cases have pain, and Braasch puts it very much higher. The pain may simulate other pains, such as lumbago, rheumatism, etc. Young says pain is more frequently noted in the later stages of disease, such as our case, after a year of hematuria.

Now the study of the kidney itself. What does the kidney reveal? And here progress in urology again assists in diagnoses. It would be a diagnostic absurdity for our group to hang the diagnosis of hypernephroma on the findings of one, or five, or even ten cells per high power microscopic field, but you remember the woman noted it herself and that is what brought her to the Massachusetts General Hospital on August 11th. You will note that all attacks were of very short duration, which probably explains why the catheter revealed a full bladder and no impairment of function on August 11th. Kelly tells us that deficiency of function on suspected side points to it being the site of disease, but the contrary is not true if the function is normal, because that kidney may go on secreting until the secreting surface is cut off by the tumor growth. A pyelogram is of very great value. Braasch states this data will identify or exclude renal involvement in a large percentage of cases. Six months before August 11th our patient had x-ray of the genito-urinary tract. What does that mean? Did she have x-ray for stone, for kidney or what? Whatever she had the result was negative, and we are not able to use it in our evaluation. However, we do know that on the 12th she had a cystoscopic examination and pyelogram made. We have not that report but we are of the opinion that the radiologist and urologist were able to make a diagnosis. The patient was relieved by catheterization of ureter, probably by the relief of congestion.

You will recall from your anatomy, that in the male the right spermatic vein opens into the inferior ven cava at an acute angle, and the left into the renal vein at a right angle. In the female the ovarian veins correspond to these and enter in the same way, yet in a review of post mortem findings I fail to find one reference to varices of the ovarian vein comparable to the common symptom of varicocele associated with hypernephroma in the male. Circulatory disturbances are frequent, particularly in hy-

pernephroma. Braasch goes so far as to advance the theory that toxins absorbed from the tumor may have vasomotor dilating effect seen in the face, bladder, scrotum and hemorrhoids. We add to that the mechanical effect in our case, the irregular heart; she had rapid heart, cyanosed lips and mucous membranes, tired easily, had dyspnea and epigastric smothering sensations, due probably to metastases. Kelly points out that plugs are frequently found in association with hypernephroma, and uses one of Max Brodel's drawings to illustrate the method of removing plugs in renal vein thus curing the patient by their removal. These emboli are sometimes found extending up the inferior vena cava even to the heart.

Our patient was 61 years old; we find in the decade of 50 to 60 twice as many hypernephromata as in any other. Our group worried quite a little because our patient did not lose weight. We find in the British Journal of Dermatology a case reported of hypernephroma with obesity. Cachexia is not mentioned. Young and Davis do not mention it in their symptoms except as it is covered by loss of weight. Patient's skin was pale, we have no blood picture to check against this. Kelly states that pure cancer cases are apt to show cachexia early, hypernephroma late.

Temperature: Israel states that in 145 cases fever was noted in 8 per cent in end stages. Some had it early.

Summarizing: 80 per cent malignancies of kidney in this decade, 5th and 6th, are hypernephroma. Our diagnosis of this case is hypernephroma right kidney, with metastases.

Discussion by Massachusetts General Hospital

Edward L. Young, Jr., M. D.

This is the picture of a woman well advanced in years, with the story of hematuria for a year and a half, starting abruptly, continuing up to the time of admission, with cardiovascular damage and negative X-rays so far as the urinary tract is concerned. The onset of that hematuria might actually have been connected with the fall, although bleeding usually comes on pretty soon after any jarring if at all. This came on only the next day.

With a negative X-ray we could rule out stones as a cause of this hematuria, because had it been due to a stone so small or so situated that X-ray would not show it bleeding would not have continued up to the present time.

She has enough evidence of cardiac disease to say that that alone is the cause of the hematuria. Of course it is unusual to have hypertension and nephritis cause hematuria to this degree and for this length of time, although I believe it is one of the commonest cause of microscopic hematuria and often of macroscopic hematuria.

The facts that the X-rays are negative and that there is a mass to be felt in the right flank bring up the question of tumor of the kidney. With no more evidence of sepsis than there is in the catheter specimens it seems hard to fit a pyonephrotic kidney into the picture. It seems to me that the pyelogram will very probably show an abnormal kidney, probably from tumor.

PRELIMINARY DIAGNOSIS

Hypernephroma.

CYSTOSCOPY

Cystoscopy was done for the purpose of confirming a diagnosis of hypernephroma, but after inspection of the bladder, which was normal, and catheterization of the ureters, the flow of urine was so poor from both sides and the patient was in such poor condition that it was thought advisable to discontinue the operation.

PYELOGRAM

The left kidney shadow was large. The right kidney shadow was obscured by gas and motion. There were no X-ray shadows of urinary calculi. A right pyelogram revealed normal calices, renal pelvis and ureter. There were extreme proliferative changes about the lumbar spine and pelvic joints with eburnation of the left hip joint.

FURTHER DISCUSSION

Dr. Richard Dresser: The plain films of the kidney were negative. We have here the film of the injected pelvis. That pelvis is just a little large, but I believe it is within normal limits. I was trying to find the kidney outline on that side. It does not show up very clearly. We can imagine a line which might be the kidney, but it is not definite.

Dr. E. G. Crabtree: Is that lower calyx right?

Dr. Dresser: I think it is all right. I think that the apparent deformity is due to the position in which we are looking at the kidney.

Dr. Young: The fact that we do not see the outline of the kidney on that side is often important, assuming we are satisfied that we have a good x-ray.

Dr. Dresser: I think it is important.

Dr. Young. On the other hand, that is a distressingly normal pelvis.

Dr. Crabtree: That does not rule out the possibility of cystadenoma.

Dr. Young: We have no cause for bleeding from the bladder, according to the cystoscopy, and the pyelogram does not give us any definite diagnosis. We did not have any x-rays of the chest. Was there any question of metastasis?

Dr. Dresser: No.

Dr. Young. I think I will let Dr. Richardson give us the diagnosis. It still seems to me that kidney tumor of some type is the best bet. Of course it is conceivable that her cardiorenal system was badly damaged, that her pressure before this has been higher, that there is a certain amount of nephritis, and that this is an unusually prolonged case of bleeding from cardiorenal disease.

Dr. Cabot: Do you suppose she could have had a kidney infarct? That would give bleeding. She had a poor heart.

Dr. Crabtree: Could it be an infarct for a year and a half?

Dr. Cabot: I did not notice that it had been going on so long.

Dr. Young: I have never known gross blood from cardiorenal disease, proved as such, to last over six months. I saw one case with Dr. Hugh Cabot that did last nearly as long.

Dr. Cabot: There is generally a high blood pressure with that.

Dr. Young: Yes.

Dr. Cabot: Do you think the pyelogram did her any harm?

Dr. Young: No. Properly done I do not think a pyelogram *per se* does anybody any harm. I do not think that the injection of the solutions now used, if carefully done, does any harm unless the kidneys are badly damaged; in that case to do a double pyelogram might be a very considerable risk, by hitting the kidneys when they were just on the edge of suppression.

I have no guess except kidney tumor.

A Physician: How do you explain the pulse of 160?

Dr. Young: She died within an hour. We shall have to ask the pathologist to tell us. I do not explain it.

CLINICAL DIAGNOSIS (From Hospital Record)

Neoplasm (?) of the left kidney.

Myocarditis.

Pulmonary embolus.

DR. EDWARD L. YOUNG'S DIAGNOSIS

Kidney tumor.

ANATOMIC DIAGNOSES

1. Primary fatal lesions.

Adenocarcinoma (hypernephroma of left kidney. Metastases in lungs and liver.

2. Secondary or terminal lesions

Pulmonary embolism.

Hypertrophy of the spleen.

Arteriosclerosis.

Hypertrophy and dilatation of the heart.

3. Historical landmarks

Chronic pleuritis.

Dr. Richardson: The head was not examined. The abdomen was not distended, and the wall was negative. The skin showed a tan-like color, but no definite icterus. The muscles were negative. Subcutaneous fat in large amount. Breasts negative.

The peritoneal cavity and appendix were negative. The mesenteric glands were slightly enlarged and surrounded by an areola of gelatinous tissue. A piece was taken for microscopic examination. It showed no neoplasm. The retroperitoneal glands also were rather firm. A piece taken from them was negative for neoplasm.

The liver was six centimeters below the costal border. The diaphragm was at the fourth rib on the right and the fifth rib on the left.

There was no excess of fluid in the pleural cavities. There were a few old adhesions on the right, on the left none except adhesions from neoplastic nodules scattered in the pleura. These extended into the lung tissue. This condition was present on the right side.

The trachea and bronchi contained some pale mucous material, but were otherwise negative. The bronchial glands were frankly negative.

We have already mentioned the neoplasm in the lungs. The lung tissue itself was rather pale, spongy, no areas of consolidation, and showed scattered through it rather firm nodules of varying size up to 3.5 centimeters in diameter of malignant tissue which was gray-white, homogenous, firm to slightly gristly.

The pericardium was negative. The heart weighed 422 grams.—moderately enlarged,—with negative myocardium, valves and coronary arteries. The coronaries showed considerable fibrous sclerosis scattered along them in places, but this produced

no definite decrease in their circumferences. The aorta showed fibrous sclerosis, with scattered areas of fibrocalcereous change. There was a slight amount of fibrous sclerosis in the great branches. All told, a slight to moderate amount of arteriosclerosis, with some hypertrophy and dilatation of the heart.

On the death report that came down here the surgeons made the diagnosis of pulmonary embolism. The pulmonary artery at its bifurcation was occluded by a large frank branching embolic mass which was prolonged down each primary bronchus and into some of the great branches in the lung tissue. The pulmonary veins and venae cavae were frankly negative and the renal veins were free, as were the other great radicles of the inferior cava.

The liver weighed 1915 grams. The surface was smooth, the tissue of good consistence, rather pale. In the region of the anterior surface of the upper part of the left lobe near its junction with the right there was a small mass of neoplasm similar to the malignant tissue which we have described. It was about 12 millimeters in diameter.

The gall-bladder contained twenty-four stones. They were about six millimeters in diameter. But the bladder mucosa was negative and the bile-ducts free and negative. The pancreas and the duct of Wirsung were negative. The spleen weighed 315 grams; moderately enlarged. The tissue was brown-red, rather mushy, but showed no definite lesion. The adrenals were frankly negative.

The right kidney weighed 174 grams. The capsule came off easily, leaving a good surface. The cortex was six millimeters. The kidney tissue generally was in good condition. The pelvis and ureter were negative. The left kidney including the tumor involving it, weighed 325 grams. The kidney tissue was practically replaced by a mass of malignant tissue. This tissue extended from the surface inward for several centimeters and resembled the typical tissue of the so-called hypernephroma, but its lower border was sharply marked off from neoplastic tissue which was pale, elastic, and like that in the lungs. This extended to the region of the pelvic wall. The pelvis showed no definite dilatation. The ureter was frankly negative. In two places on the pelvic mucosa there were very small plaques of malignant tissue.

The bladder, uterus and adnexa were negative.

Sections from the tumor tissue in various places showed adenocarcinoma of the kidney, hypernephroma, and showed that there were no metastases in the lymph glands. No particular source was found for the pulmonary embolus unless it came from the left renal veins.

Dr. Young: That was the left kidney. I think it is another instance of the will to believe. There was a little tenderness in the kidney doing all the work, and it was thought because of that and a little spasm that everything was on that side.

Dr. Crabtree: The other thing was of course that they did not have a chance to investigate. If they had had functions they certainly would not have injected the wrong kidney.

Dr. Young: It is an instance of how one can go wrong on insufficient evidence.

Dr. Richardson: The clinical diagnosis on the death report was, "Question of neoplasm in the left kidney."

Dr. Young: They injected the right. This was taken from the record. Is there any record about cyanosis when she was dying?

Miss Painter: Cyanosis is not mentioned.

A Physician: Did she die from the hemorrhage in the lung?

Dr. Young: From the embolus in the lung, yes.

DIAGNOSTIC OPEN FORUM

Based on the Cabot Case Histories selected and studied by the Yavapai County Medical Society and the Medical Officers of U. S. Veterans Hospital at Whipple, Arizona.

Any medical society or hospital staff in the southwest is invited to discuss these cases and submit their discussions or diagnostic conclusions for publication in this journal, along with those of the Yavapai County group.

Cases for October 30th

Group II. Case 1.

A zoologist twenty-six years old entered September 12, 1897.

September 7 he sailed from Jamaica after a ten weeks' stay. He was unaccustomed to the hot climate and had been more or less run down during the summer and had slept poorly. The day after he sailed he had frontal pain in the head and pain in the back and legs, apparently a high fever, and then profuse perspiration, but no chill. His pulse was 140. The next day he felt better, but had nausea and considerable perspiration all day. He had taken thirty to forty grains of quinine daily since September 8. His ears were still ringing. September 10 to 12 he was better, although he had some nausea and vomiting nearly every day. He had several loose movements daily and considerable gas. His appetite had been poor. He had had no fever since September 8.

His father died of consumption.

He had had the diseases of childhood, including scarlet fever. He had had malaria (?) five years before admission and malarial fever for one day last July. He had occasional headaches. He usually took no alcohol.

Clinical examination showed a well nourished man who seemed somewhat dazed and quite deaf. The upper part of the chest front and back was thickly spread with hyperemic papules, some of them surmounted by vesicles which looked somewhat cloudy. There were a few papules over the abdomen. Some gurgling was heard throughout. The splenic dullness was one inch above the costal border. There was no tenderness.

Amount of urine not recorded, urine dark, specific gravity 1.016, a large trace of albumin, bile present, a few leukocytes, granular and hyalin casts, some with fat adherent, a few cells on casts, little free fat, rarely an abnormal blood corpuscle. Blood: 7,800 leukocytes, hemoglobin 92 per cent, no malaria parasites at two examinations. Serum reaction not obtained.

On entrance temperature was 103, pulse 70 and respiration 20. Forenoon of the 13th, temperature was 98.6, pulse 86, respiration, 20. In afternoon shortly before death, temperature was 102, pulse 60 and respiration 52.

The night after admission the patient vomited once. There was slight cyanosis. At seven o'clock the next morning he said he had not felt so well in months, had no ringing in the ears and no pain anywhere. An hour later, however, after answering one or two questions he could scarcely be roused. The skin and sclera now showed jaundice. This had followed a fall in temperature to normal. Two hours later he could not be roused at all and was more cyanosed. There were clonic contractions of the jaw muscles. He was unable to swallow. The arms and legs were somewhat stiffened. The condition grew steadily worse. There was fibrillary tremor of the chest muscles. The pupils later were

contracted and did not react. The liver dullness, which the previous night seemed to extend to the costal border, was now from the fourth to the seventh rib. Late in the afternoon there was Cheyne-Stokes respiration. Strychnine had no effect. He continued to have vomiting and diarrhea. One movement contained a little blood. During the day there were some blood streaks in the vomitus, perhaps from the throat. The tongue was ecchymosed where blood had been taken for examination. In the course of the day the jaundice became more marked. A friend reported that the patient was not yellow September 12, although his urine was very high colored. The liver was at the costal border. The spleen was not much enlarged.

The cyanosis became more marked. The afternoon of September 13 the patient died. Almost immediately after death the head drew back and muscular rigidity set in.

Group III. Case 2.

A girl baby seventeen months old entered March 20. The complaints were abdominal distention and listlessness.

Six months before admission the mother was called home from work because the child appeared dull and did not play well. She found the child's abdomen was distended. The child was put in a hospital for three weeks without relief. On returning home she gradually improved and the distention became less. Four weeks before admission she again became listless and had loss of appetite and occasional vomiting. Once she became stiff and was thought to have a convulsion. She had also rubbed her head as if it ached. For two nights before admission she slept very poorly.

The child was well until the present illness. She had had only one or two colds and never any cough. When a few months old she had a brownish sticky discharge from both ears.

A maternal uncle died of tuberculosis. A paternal aunt had intestinal tuberculosis. The child had never been in contact with either. Her mother worked out at times, leaving the baby to be cared for by a woman who came to the house.

Clinical examination showed a poorly developed and nourished, pale and apprehensive baby with a noxious odor. The head showed a suggestion of prominent bosses. Ear drums normal. White plaque one centimeter in diameter on the right buccal surface. Tonsils large. Flaring ribs. Harrison's groove. Lungs clear. Interscapular dullness. Heart normal. Abdomen markedly protuberant, with prominent veins. Shifting dullness. Distention prevented palpation of liver and spleen. An umbilical sinus discharged brown foul smelling fluid with bubbles. Palpable masses Vaginitis. Vulva red. Many areas of erythema half a centimeter in diameter and excoriations on both buttocks. Pupils and knee-jerks normal.

Amount and specific gravity of urine not recorded. Findings normal. Blood: 11,600 leukocytes, 68 per cent. polymorphonuclears, 50 per cent. hemoglobin, reds 3,520,000. Wassermann negative. Tuberculin human and bovine 1/1000, negative. Smear of fluid from umbilical sinus showed few cells but many organisms, bacillus coli and Gram-positive cocci predominating; culture, no growth. Stools: fats and some starch in one of two specimens.

X-ray of the abdomen showed no abnormality. The supracardiac area was not increased in width. The heart shadow was unusually wide, perhaps because the plate was taken at inspiration and the diaphragms were high. An examination with barium showed the stomach empty after six hours. The pyloric area appeared slightly narrowed but as far as could be determined was normal. Considerable barium was scattered through the colon as far as the descending portion. After twenty-four hours the

head of the barium column was shown at the mid descending colon.

Temperature 98.4° to 102°, rectal, until March 29, then 98° to 99.5° for two days, then 98.4° to 101.1° with a terminal rise to 103°. Pulse 120 to 97. Respirations 30 to 71.

March 22 edema of the feet developed. A surgical consultant made a diagnosis of persistent Meckel's diverticulum, perhaps with associated partial intestinal obstruction. He thought operation was indicated, but dangerous, and advised waiting until the patient was in a better condition. An oculist found the eye grounds difficult to examine but apparently normal.

March 25 the child was given a capsule of carmine. A slight tint of the dye appeared in the discharge from the sinus in twenty hours, and a definite red color the next day. The dye appeared in the stool in not more than twenty-two hours and three quarters after ingestion.

March 28 there was an edematous area, not red, covering the left ear. It seemed to have started three days earlier in the angle of the jaw, probably in a gland. The throat and the other ear were normal. The temperature was 102. The bases of both lungs showed slightly harsh breath sounds and decreased resonance.

During the next week the child did badly, lost weight and was lethargic. A lumbar puncture was done March 30 gave clear colorless fluid, initial pressure 210 to 220, combined jugular compression 310, after removal of 13 cubic centimeters 120; six cells; globulin slightly increased, Wassermann negative, total protein 21, goldsol 1110000000, sugar 60. Edema of the extremities was quite marked. There was congestion of the bases of the lungs. April 5 the child died.

Cases for November 27th

Group I. Case 1.

An American of seventy-seven entered the hospital December 15 so weak that the history taking was stopped almost at its beginning. The chief complaint was "bronchial asthma."

As long as he could remember he had had "asthma" of the worst sort. The present attack began suddenly three weeks before admission.

Clinical examination showed a pale, emaciated, very senile old man coughing weakly but frequently and occasionally raising a dram of grayish mucopurulent non-tenacious sputum. Lower conjunctivae bordered with mucopurulent secretion. Teeth all missing. The throat showed a few slightly red areas covered with exudate. Spine stiffened. Apex impulse of the heart felt 10 centimeters to the left of the midsternum, coinciding with the left border of dullness 2 centimeters outside the midclavicular line. Supracardiac dullness and right border of dullness not made out. Sounds of poor quality, weak. Pulmonic second sound accentuated. Rhythm regular. A soft apical systolic murmur, a questionable basal systolic, no diastolic. Artery walls markedly thickened and tortuous. Blood pressure 90/0. There was a definite reduction in the intensity of sound at 40 millimeters, but definite beats could be heard down to zero. Marked emphysema. Occasional diffuse asthmatic squeaks. Coarse rhonchi throughout, disappearing after cough. No consolidation made out. Diffuse moist rales which tended to disappear after coughing. Breath sounds prolonged and slightly raised in pitch. Whistler diminished throughout. Slight dullness at both bases behind. Tactile fremitus normal or slightly decreased. Expiration limited equally on both sides. Marked apical retraction, more on the right. Slight tenderness in the right upper quadrant. Voluntary spasm prevented satisfactory examination. Cecum enlarged, firm, full of gurgles; not

hard or tender. Slight pitting edema of the feet, more on the left. Extremities cold. Eczematoid macular eruption over both lower legs. Pupils normal. Fundi, especially the left, obscured as to detail by opaque lenses. Kneejerks not obtained without reinforcement.

Amount of urine normal, specific gravity 1.014, a trace of albumin, 10 to 20 leukocytes per field in the single specimen. Blood: 6,200 to 9,300 leukocytes until December 20, polymorphonuclears 89.5 to 85 per cent; hemoglobin 40 to 45 per cent and reds 1,000,000 to 1,500,000 before transfusion, afterwards hemoglobin 50 to 55 per cent, reds 1,828,000 to 1,656,000. Entrance smear: polymorphonuclears multilobed and granular, red cells showed more than normal variation in size and shape; a few large polychromatophilic cells, no true microcytes. Platelets not definitely diminished, varied in size, a few large. No marked achromia. Smear December 16; polymorphonuclears old, with many lobes and large granules. Marked poikilocytosis and some anisocytosis, several small reds seen, a few large ones, reds in general smaller than normal, no young forms seen. Platelets slightly decreased, with some variation in size, some large platelets. Reticulocytes 0.3 per cent before transfusion. 0.1 to 0.6 per cent after transfusion. Red cell diameter measurements: median and dispersion both markedly increased. Icteric index 15. Wasserman: bile. Non-protein nitrogen 75 to 77 milligrams. Fasting contents of stomach: 170 cubic centimeters of brown liquid with precipitate no free hydrochloric acid, combined acid 52, guaiac strongly positive. Test meal: 25 cubic centimeters of light brown material with precipitate, free hydrochloric acid 0, combined acid 24, guaiac positive.

Temperature 97.8° to 102.3°, rectal. Pulse 69 to 138. Respiration 24 to 32.

The patient was too weak for study. December 17 he seemed in a moribund coma. There was left facial paralysis, ptosis of the left eye and pulling of the mouth toward the right side. Tracheal rales were audible across the room. 600 cubic centimeters of blood was transfused. There seemed to be slight improvement following the transfusion. He roused somewhat from coma. Six hours later there was no facial paralysis. He progressed satisfactorily until the night of December 20. Then the rhonchi increased in number and became widespread. The leukocyte count was 4,000. Soon after midnight he died.

Group II. Case 2.

A sixteen-year-old schoolgirl entered March 13.

Five weeks before admission she had a streptococcal sore throat. She had been ailing since that time. Three weeks before admission she had "rheumatism" in her feet, ankles, hip and wrist. March 5 her face began to twitch. March 8 she stopped school. The following day she talked incoherently. March 10 she began to throw her head from side to side. The night of March 11 she was found in her night clothes crouching over the register talking to herself about being chilly. The bed was pulled to pieces and the room torn up generally. The day before admission she began to throw herself about and was unable to talk at all. She had a wild night in spite of chloral. She had not slept for five or six nights.

She had a similar attack at twelve years.

Clinical examination showed a well nourished girl showing marked incoordinate movements of the entire body, requiring forcible restraint to keep her in bed. She did not sneeze when questioned. Cheeks and mucous membranes flushed. All prominences and convex surfaces of the body showed reddening in the form of discrete and confluent papules, not decolorizing on pressure. Skin dry and harsh. Apex impulse of the heart felt in the fifth space 8 centimeters from midsternum. Action rapid, regular.

Sounds of fair quality. No murmurs. Pulmonic second sound accentuated at the base. Lungs normal. Abdomen held rigid, otherwise normal. No edema. Pupils not examined. Knee-jerks, abdominal reflexes and reflexes at wrist and elbow not obtained. Plantar reflexes normal. No Kernig. Neck not stiff.

Amount of urine not recorded, specific gravity 1.022, slightly alkaline at both of two examinations, cloudy at one, a very slight trace to the slightest possible trace of albumin at both, acetone at one. Blood 19,000 to 14,000 leukocytes, polymorphonuclear leukocytosis, hemoglobin 85 per cent.

The patient was very violent. Her movements were only partly controlled by chloral and occasional doses of morphia. March 18 a short rough high pitched systolic murmur appeared at the apex.

March 19 a lumbar puncture was done and 15 cubic centimeters of fluid withdrawn, part of it very bloody, part nearly clear. It reduced Fehling's solution slightly. Sediment from the clearer tube was mostly blood corpuscles. Of 100 cells 80 per cent, were polymorphonuclears, 20 per cent mononuclears. The number of these cells seemed to be no more than might be expected with the amount of blood present. A culture of the fluid showed no growth.

Temperature 99.9° to 103.7°, with a terminal rise to 108°. Pulse 108 to 160. Respirations 15 to 28.

After the lumbar puncture the temperature rose steadily to 108°. The patient became weaker, the movements subsiding only as her strength failed. Strophanthin was given with no response. A double parotitis developed. The breathing became very shallow. The morning of March 20 the patient died.

PERSONALS AND NEWS

DR. JOHN J. McLOONE, of Phoenix, has returned home after spending the summer in Europe. He visited the principal cities of Great Britain, Ireland, France and Germany. During the latter part of July he attended the International Oto-Laryngological Congress of Copenhagen. The greater part of his time was spent in doing special work in Professor Portmann's Oto-Laryngological Clinics at the University of Bordeaux.

DR. E. PAYNE PALMER, of Phoenix, will return home about October 25th, from a visit of several weeks in the east. He attended the meeting of the College of Surgeons in Boston, as a member the Board of Governors from Arizona, and the conjoined Congress on Surgery including the special week of clinics on fractures given by Dr. Scudder. Following this, he attended the Southwestern Clinical Conference in Atlanta, Ga., whose program presented an unusual array of foreign and American surgical talent.

DR. J. M. PEARSON, of Glendale, Ariz., has returned to that location after spending several years in California. He has purchased property in Glendale and will build a combined residence and office.

DR. F. D. VICKERS, of Deming, N. M., attended the Twenty-sixth Anniversary Pacific Association of Railway Surgeons, the last week in August, returning home in September.

THE U. S. PUBLIC HEALTH SERVICE, thru H. W. Komp, engineer and Dr. M. A. Barber, expert on malaria, have completed their survey of the malaria bearing mosquito in New Mexico. Their work was largely among the Indian tribes where malaria was found to be prevalent.

DR. P. M. STEED, of Deming, N. M., has been appointed health officer of Luna county, succeeding DR. J. C. MOIR, who recently resigned.

DR. C. H. LAUGHARN, of Clifton, Ariz., has returned from vacation spent on the Pacific Coast, and resumed his work in Greenlee county.

DR. J. E. REDDEN, of Casa Grande, Ariz., is celebrating the arrival of a possible future M. D. in his family, on Sept. 14.

DR. GEO. N. FLEMING, of Las Vegas, N. M., is the republican candidate for state senator from the third senatorial district of that state.

DR. A. C. CARLSON, of Jerome, Ariz., president of the Arizona State Medical Association, is away from his work during the month of October, taking a well earned vacation.

DR. CHARLES S. SMITH, formerly of West Virginia, has located in Nogales, Ariz., where he will practice the specialty of eye, ear, nose and throat. Practitioners of this specialty are not very plentiful in Arizona outside of the cities of Phoenix and Tucson, and Dr. Smith should be a welcome addition to the medical fraternity of the border city.

DR. CHARLES SECHRIST, formerly of St. Louis, has moved to Flagstaff, Ariz., where he will be associated in practice with Dr. A. H. Schermann.

SCHOOL EXAMINATIONS IN MOHAVE COUNTY, ARIZ.: Drs. Toler White, W. C. Todt and Walter Brazee, during the past month, have examined over 300 school children of Mohave County. Of this number, only 27 were found defective, mostly from diseased teeth, tonsils, or improper diet.

VETERANS HOSPITAL IN TUCSON DEDICATED:—On October 13, the new million and a quarter dollar hospital of the Veterans' Bureau was dedicated, and formally turned over to Dr. William D. McFaul, medical officer in charge. All the patients from the Pastime Park institution have been transferred. The new hospital is south of the city and is surrounded by spacious grounds. At the dedication exercises, Governor G. W. P. Hunt and Senator Henry Ashurst were the chief speakers.

NAVAJO COUNTY DEMOCRATIC PLATFORM EMPHASIZES PUBLIC HEALTH:—The Navajo County Democratic platform, adopted on Sept. 28th, has a very commendable clause on public health. With the introductory statement that public health is a social science and not an experiment, it demands that governmental policies shall guard the health of its citizens from birth throughout life.

DR. A. J. WHEELER, physician for the East Farm Sanitarium of the Indian School at Phoenix, is suffering from an attack of Malta fever. This was contracted during the summer while on a visit to Luepp Indian School. He states that most of the Indians in that section drink goat milk, and many of them have attacks of illness which he thinks due to Malta infection.

DR. ROY THOMAS, of Los Angeles, was a visitor in Phoenix on October 14th, with his parents, Dr. and Mrs. John Wix Thomas.

DR. SAMUEL H. WATSON, of Tucson, returned home on October 14th, from a visit of two months to eastern medical centers. On the 12th, he read a paper before the Heliotherapy Association, in Chicago.

DR. JOHN E. BACON, of Miami, was among the Arizona surgeons who attended the American College of Surgeons in Boston, the middle of October. He also attended the special demonstration clinic of Dr. Scudder on Fractures, held just prior to the College gathering.

DR. J. M. GREER, of Phoenix, who is taking prolonged postgraduate work in New York, attended the College of Surgeons meeting in Boston October 9 to 12, including Dr. Scudder's special class in Fractures.

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DOCTOR HENRY A. HUGHES

With the passing of Doctor Henry A. Hughes, of Phoenix, one of the most colorful and interesting careers among the citizens of Arizona was brought to a close. When Dr. Hughes responded to the toast addressed to the charter members of the Arizona State Medical Association, at the banquet in Tucson, last April, there was little in his appearance to indicate that he would never again appear in a meeting of the Association he helped to organize in 1892.

Dr. H. A. Hughes was born at Elsworth, Ohio, in 1848. He graduated from the Kentucky School of Medicine at Louisville in 1875, and from the Jefferson Medical College in Philadelphia in 1881. After several years practice in Texas, he located in Phoenix in 1886, and for forty-two years he has been prominent in medical and political circles. He was one of the charter members of the old Territorial Medical Association and was its second president, being elected at the meeting of 1893. Not only the leading practitioner of medicine in the early days of Phoenix and the Salt River Valley, he was also one of its chief citizen builders. An uncompromising foe of saloons, gamblers and organized vice, in a day when such opposition was not as popular as it now is, he lived to see gambling, saloons and open vice banished from his city and state, largely through his own influence and efforts.

It was with a subconscious prescience that the opportunity might not present again, that the testimonial to the charter members of the Association, centering around Dr. Hughes, was arranged for the meeting in Tucson in April. We are grateful that the testimonial is on our records, as the memory of the long and useful life of Dr. Hughes will remain graven on our hearts.

REAL VS. MAKESHIFT PUBLIC HEALTH WORK.

At the last annual meeting of the Arizona State Medical Association, a resolution was introduced and referred to the Committee on Public Welfare, asking that the influence of the Association be directed toward full time health officers in Arizona. The question frequently arises as to the advantages to be gained from a full-time health officer, who has no other professional interest aside from making living conditions healthy for his community, and preventing spread of disease. The following brief summary of some accomplishments by Dr. Ernest W. Prothro, former full-time health officer of McKinley County, N. M., and now in charge of the county unit work of Cameron County, Texas, is taken from the weekly bulletin of the New Mexico Bureau of Public Health. It speaks for itself:—

"A yearly examination of all public and parochial school children totaling 10,000 was made. 7,000 of this number were found to have one or more defects of which 1,500 we know have been corrected. An extensive school follow-up campaign was carried out.

"There are 27 cases of diphtheria with three deaths. 5,000 toxin anti-toxin immunizations to school and pre-school children prevented further spread. Several cases of suspected smallpox were reported but none proved positive because of the 14,000 vaccinations done during the last two years.

"All of our larger towns have passed the United States Public Health Service Standard Milk Ordinance and much time was spent in teaching the dairymen how to produce good milk. We assisted with the tuberculosis testing of 5,050 cows and destroyed 270 found diseased. Where less than 5 per cent of the milk was anywhere close to grade "A," 80.5 per cent is now in this class. People who were served skimmed and adulterated milk, may now obtain type specified on the label. In obtaining this high grade, 164 dairies were graded, 700 inspections were made in which 900 corrections were obtained, 600 laboratory specimens were examined in which some of the first tests ran up into the millions of bacteria to the cubic centimeter while now there are few samples that run more than from 10,000 to 50,000. This work now involves 2,611 gallons of milk daily.

PROGRAM OF THE SOUTHWESTERN MEETING

Albuquerque, November 8, 9 and 10

Below will be found the completed program of the annual meeting of the Medical & Surgical Association of the Southwest. The Program Committee has arranged a Clinical Congress, similar to the meeting

held last year in El Paso, which attracted the largest gathering ever assembled at a Southwest meeting. The program is very attractive and should draw another large attendance:

PROGRAM

THURSDAY, NOVEMBER 8

MORNING SESSION, 10 A. M.

Address of Welcome:

MAYOR CLYDE TINGELY, Albuquerque, N. M.

President's Address:

DR. HUGH CROUSE, El Paso, Texas.

Early Diagnosis and Preventive Treatment of Endocrine Disorders:

DR. WILLIAM ENGELBACH, St. Louis, Mo.

Necessity for Team Work in the Treatment of Cancer:

DR. H. J. ULLMAN, Santa Barbara, Calif.

LUNCHEON RECESS

AFTERNOON SESSION, 2 P. M.

Inter-relationship of Pediatrics and Psychiatry:

DR. F. P. GEGENBACH, Denver, Colo.

The Relation of Mesenteric Adenitis to Abdominal Surgery:

DR. LEONARD FREEMAN, Denver, Colo.

Complications of Pott's Fracture:

DR. DENNIS CRILE, Chicago, Ill.

Clinical Address:

DR. VERNE C. HUNT, Mayo Clinic,
Rochester, Minn.

FRIDAY, NOVEMBER 9

MORNING SESSION, 9 A. M.

Clinic:—Tuberculosis in Children:

DR. J. A. MEYERS, Minneapolis, Minn.

Psychiatric Study of Four Murderers:

DR. KARL MENNINGER, Topeka, Kans.

The Internist and the Diagnosis of General Paresis:

DR. N. H. BRUSH, Santa Barbara, Calif.

Early Diagnosis and Preventive Treatment of Endocrine Disorders:

DR. WILLIAM ENGELBACH, St. Louis, Mo.

LUNCHEON RECESS

AFTERNOON SESSION, 2 P. M.

Peptic Ulcer Complicated with Appendicitis and Cholecystitis:

DR. FRED SPEIK, Los Angeles, Calif.

Surgical Pathology of Peritonitis:

DR. J. W. KENNEDY, Philadelphia, Penna.

Clinical Address:

DR. VERNE C. HUNT, Mayo Clinic,
Rochester, Minn.

Lead in the Treatment of Cancer:

DR. H. J. ULLMAN, Santa Barbara, Calif.

SATURDAY, NOVEMBER 10

MORNING SESSION, 9 A. M.

Foreign Bodies in Respiratory and Upper Digestive Tract:

DR. SIMON JESBERG, Los Angeles, Calif.

Lung Abscess:

DR. JOHN W. SHUMAN, Los Angeles, Calif.

Thoracoplasty:

DR. F. P. MILLER, Los Angeles, Calif.

Tuberculosis in Children:

DR. J. A. MEYERS, Minneapolis, Minn.

LUNCHEON RECESS

AFTERNOON SESSION, 2 P. M.

Pulmonary Surgery:

DR. EVARTS GRAHAM, St. Louis, Mo.

Vaginal Hysterectomy and Its Indications:

DR. J. W. KENNEDY, Philadelphia, Penna.

Diagnostic Clinic:

DR. JOHN W. SHUMAN, Los Angeles, Calif.

Diagnostic Clinic:—Infant Feeding and Nutritional Cases:

DR. F. P. GEGENBACH, Denver, Colo.

EL PASO COUNTY MEDICAL SOCIETY
Meeting at
WILLIAM BEAUMONT GENERAL
HOSPITAL
September 17, 1928

Remarks of Welcome, Col. William H. Moncrief, M.C.
SURGICAL SUBJECTS

Arranged by Maj. Frederick S. Wright
 Chief of Surgical Service.

1. Presentation of Gunshot Wounds (two cases)
 Maj. Walter L. Reesman, D. C.
2. Impacted Cuspid with Headache
 Maj. Charles G. Hutter, M. C.
3. a. Malignant Growth of Rectum.
 2. Viseroptosis and Chronic Cholecystitis
 Capt. Daniel C. Hutton, M. C.
4. Polycystic Kidney with Nephrolithiasis
 Lieut. William R. Craig, M. C.

MEDICAL SUBJECTS

Arranged by Maj. Michael A. Dailey
 Chief of Medical Service

1. Aneurism - - Capt. Edward A. Casserly, M.C.
2. a. Aortic Regurgitation
 b. Arthritis
 c. Enlarged Spleen
 Capt. David L. Stewart, M. C.
3. Enlarged Liver and Spleen (two cases)
 Maj. Jacob C. Bowman, M. C.
4. a. Post Encephalitic Manifestations, (two cases)
 b. Neuro-syphilis, (4 cases, including Charcot Spine),
 c. Psychasthenia,
 d. Psychoses, (4 cases of Dementia Praecox and one Alcoholic Hallucinoses)
 Capt. Elgen C. Pratt, M. C.

X-ray views, where indicated in any of the above cases, were shown by Lieut. Clifford A. Gray, M. C.

EL PASO HEALTH DEPARTMENT

Deaths for Month of August, 1928

	Male	Female	Total
White	28	6	34
Mexican	43	50	93
Black	3	2	5

Total74 58 132

Births for Month of August, 1928

	Male	Female	Total
White	35	33	68
Mexican	163	101	264
Black	2	2	4

Total140 136 276

ST. JOSEPH'S HOSPITAL (Phoenix)

September Staff Meeting.

The Staff of St. Joseph's Hospital resumed regular meetings, after the summer vacation, on September 10th. Dr. E. Payne Palmer, chairman of the staff, called for the monthly report and summary for the months of July and August, which were read by Dr. Fournier. Dr. Palmer called attention to the inconvenience which arises when surgeons fail to keep their appointments in the surgery and thereby encroach upon the time of operations scheduled to follow. He also called attention to the necessity of improvement in the securing autopsies, if the hospital is to secure approval for internship. He introduced Miss Hoeffner, the new Superintendent of Nurses, stating that she was for ten years in a similar position with St. Joseph's Hospital at Sioux City, Iowa.

The program chairman for the meeting was DR. FRANK MILLOY, who made the following statement:

"According to hospital authorities, we are supposed to make the material of the hospital the

subject of our staff meetings; so, in preparing the program, I have selected three cases from about seven upon which autopsies were performed. All of these three cases presented rather difficult features for diagnosis. All three of them had surgical indications, but none of them were operated on; all three died and were autopsied.

I have tried to condense the histories and treatment and the physical examinations, and will read them. It is proposed that we then have the cases discussed fully, and any criticism as to the diagnosis or treatment discussed freely, and at the end of the discussion we will have a report of the autopsy.

Under each case there is a special paper prepared by members of the staff. The subject to be discussed under each paper does not mean that that was the diagnosis arrived at from the autopsy, although it looked like the most important point to be discussed.

Case No. 13835

Patient is a white male, 39 years of age. The only information obtained about past history, is that for past week patient has not felt well and complained to his wife that his teeth hurt. While at work yesterday his foreman noticed him sitting on the running board of a car with his head down. At 5 o'clock this morning his wife found him in a convulsion. About an hour later he had recovered from the convulsion but was very hazy mentally and answered questions slowly, and said that the only symptoms he had had prior to this time was aching in his teeth. His wife stated at this time that he had had to get up several times at night to urinate during the past week and this was unusual for him.

The physical findings are as follows: Pupils equal and regular, react to light and accommodation but are contracted. Heart beat is forceful. Knee jerks diminished bilaterally. Slight Babinski on right side.

Ophthalmologist's report on eyes as follows: Fundus shows some hyperemia and congestion of disc. Veins of fundus slightly distended. Findings consistent with increase of intracranial pressure though not necessarily pathognomonic.

There are no abnormal findings in blood or urine. Spinal puncture under no pressure. Cell count 2. Wassermann negative. Urea nitrogen 16 m.g. per 100 c.c. of blood. Non-protein nitrogen 38 mg. per 100 c.c. of blood.

Report of two consultants revealed no additional information except condition of teeth very bad.

Patient became progressively worse, having repeated convulsions which became closer together, and patient finally died in a convulsion six days after entrance to hospital.

Patient's temperature varied from normal to 101, until just before death, it rose to 105. Pulse rate ranged from 60 to 80. Respiration from 16 to 20.

Ques. Did the patient vomit? Ans. No, there was no vomiting.

Ques. What was the blood pressure? Ans. Blood pressure is not mentioned, but I am quite sure that one of the men stated there was no increase in blood pressure.

Ques. Was there any paralysis? Ans. No.

DR. WATKINS: Being what Dr. Palmer once characterized as a "damned pathologist," not supposed to know anything about general medicine, I will start the discussion in hopes that those better informed will be encouraged thereby. I recall seeing somewhere in my reading of medical literature that the triads of symptoms in brain tumor are headache, vomiting and choked disc. In the current issue of the Journal of Medical Science there is an article from Cushing's service at Peter Bent Brigham Hospital in Boston, reporting upon some 145 patients with brain tumor proven by

autopsy or operation. More than 16 per cent of the patients with brain tumor of the classes supposed to be associated with eye ground changes showed no intraocular changes at all. If we could therefore have brain tumor without one leg of this triad, we might conceivably have brain tumor without any of the classical signs. If we were to consider the recorded symptoms in this case, it is difficult to see on what the diagnosis of brain tumor rests.

DR. MILLOY: About the only symptom of brain tumor which this patient had was convulsions. It would seem to be a very rapidly progressing case of brain tumor. He was only seven days in the hospital and the only symptoms prior to that time were aching of the teeth and disturbance of urination.

DR. BROCKWAY: Where does the suggestion of brain tumor come from in connection with this case? Ans. The working diagnosis on entrance to the hospital was brain tumor.

DR. BANNISTER: I think the symptoms in this case might suggest encephalitis. The temperature did not go high at all, until just before death; the pulse was slow; the knee jerks were diminished; there was no evidence of diplopia but his pupils were contracted. It would fit in with encephalitis better than with any other intracranial condition I think of.

DR. HOLMES: This is out of my line, but it seems to me to be more like an infection of some sort than tumor. I could hardly conceive of a brain tumor taking such a rapid course, and would rather expect some sort of acute conditions.

DR. MILLOY: We will have Dr. Woodman present his summary of brain tumors, which will probably throw some light on the subject.

TUMORS OF THE BRAIN

Thomas W. Woodman, M. D.

There are several types of brain tumor—the most common of which is the glioma and these comprise about 50 per cent of all tumors of the brain. There is a marked difference of opinion regarding the order of frequency of the other tumors of the brain. Those to be considered are the sarcoma, gumma, endothelioma, tuberculoma, carcinoma and fibroma.

The glioma develops from the neuroglia and from the ependyma, and, depending on the rapidity of growth, is well circumscribed or infiltrating into the brain tissue. No line of demarkation can be found either grossly or microscopically between the tumor and normal brain tissue in the rapidly growing type, but where the tumor is slow growing it is much firmer and can usually be shelled out. These tumors grow subcortically, and may be as small as a pea or may occupy half of the brain.

Sarcoma may be either primary or secondary, single or multiple. The primary forms grow from the membranes of the brain or from the bone itself and compress the brain rather than infiltrating it. Consequently they offer the best possibility of surgical relief. They may however arise in the pituitary substance, in the walls of the blood vessels, and in the sheaths of the nerves. These primary sarcomas, classified by Cushing as endotheliomas, are usually benign and readily removed. The melanosisarcoma is rare and always secondary. Multiple diffuse sarcomatosis is rare and may occur as multiple small nodules scattered over the surface of the brain or as a diffuse infiltration of the membranes of the brain.

Tubercles of the brain are never primary. They usually occur in children and most commonly in the subtentorial region. They may be solitary or multiple and when located in the region of the

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crura cerebri, of the corpora quadrigemina and the pons, may cause a secondary hydrocephalus which will tend to obscure the brain tumor syndrome. They grow from the membranes and are usually found on or near the surface. They may infiltrate the brain tissue.

Gummata are rare. Those of a solitary character do occur. These are not amenable to anti-syphilitic treatment and should be removed if possible. They are usually cortical, infiltrate the brain substance, and at times can be shelled out. The exudative form of cerebrospinal syphilitic meningitis is of course non-surgical and responds to anti-syphilitic treatment.

Fibroma is a connective tissue tumor, with few or no cellular elements, and occurs, with predilection, in the pituitary gland and is attached to the nerve trunks which leave the pons. The acoustic nerve is especially often the seat of these growths, giving rise to tumors of the cerebellopontine angle. They are usually single but may be multiple and may occur in the form of neurofibromata, attached to various cranial nerves (Recklinghausen's disease).

Carcinomata are always secondary and may be multiple, occurring as metastases. They grow rapidly and are always fatal.

Adenomata occur in the hypophysis.

Cysts may be primary or secondary. Primary cysts are those which arise from parasites such as the echinococci. Traumatic cysts around penetrating spicules of bone are at times encountered, and may give rise to considerable destruction of brain tissue. Secondary cysts are sometimes found in connection with gliomata and at times with sarcomata. Dermoid tumors and cysts are very rare.

Angiomata are occasionally found in operations for Jacksonian epilepsy. They do not present defi-

nite pressure symptoms, and, although congenital, may not manifest cortical pressure or irritation symptoms until early adult life.

Psammomata are found only in the pineal gland and occasionally in the choroid plexus. They are usually a postmortem finding.

Lipomata, enchondromata, and chordomata are rarities.

Aneurysms are usually seen in connection with the basilar or vertebral arteries and are usually luetic in origin.

ETIOLOGY

Some tumors are caused by a specific organism such as the tubercle, gumma, and echinococci. Trauma may be a factor in the production of tubercle or gummata by bruising of brain tissue and consequently lowering the resistance of the tissue to these infections. Cysts may follow the penetration of a spicule of bone into the brain tissue.

Brain tumors are more common in males than in females and occur most frequently in the third and fourth decade of life, but no age is exempt. Tumors of the pineal gland are more commonly found in children.

SYMPTOMATOLOGY

The symptomatology of brain tumors varies in accord with the size of the tumor and the location, and somewhat as to the type of tumor. The cardinal symptoms common to practically all of the tumors are headache, increased intracranial pressure, choked discs, and projectile vomiting.

The increased intracranial pressure is greatest in tumors of rapid growth and in tumors so located as to dam up the fluid in the ventricles, thus causing an internal hydrocephalus.

The cause of the choked disc seen in brain tumors is not definitely established. Some assume that the papillo-edema is purely mechanical while



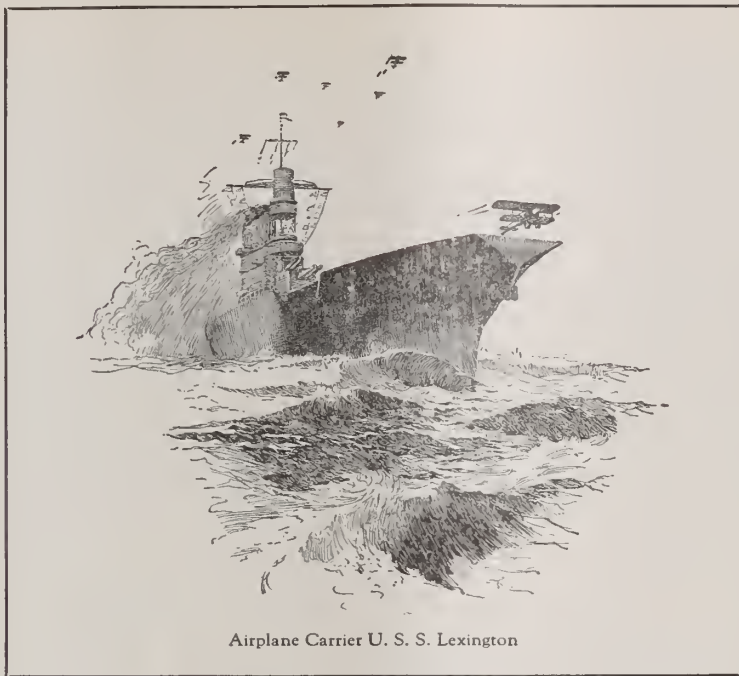
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others assume that an irritant toxin is liberated from the tumors which travels down the optic disk and produces an inflammation. This matter is of importance for if one adheres to the mechanical theory, decompression is indicated for the relief of this condition, while if we adhere to the toxic theory operation is contraindicated as regards this individual symptom.

Two groups of symptoms result from tumors: those produced by general increased pressure; and those produced by compression, irritation and destruction of the circumscribed area occupied by the tumor, namely, focal symptoms.

Cushing divides the tumors of the brain into five clinical groups: 1. Tumors which give absolutely no recognizable evidence of their existence, and are found postmortem. 2. Tumors which present focal symptoms alone, with no evidence of general increase in pressure. 3. Tumors which give general symptoms alone, with no focal manifestations, when they happen to occupy a silent area. 4. Tumors which give typical symptoms of general pressure with definite focal symptoms. 5. The symptom-complex (general and local) of tumor, which, in the absence of a growth, is brought about most often by edema from one source or another, (pseudo-brain tumors). Both the general and the focal symptoms of brain tumor are subject to two conditions; (1) element of time, and (2) gradually increased compression of the brain as a whole and a gradually increased local destruction of tissue.

The general symptoms are headache, vomiting, vertigo, choked disk, convulsions and mental symptoms, changes in pulse and respiration.

The headache of brain tumor is characterized by its severity. It is general in character, and is usually not more severe in the region of the tumor. The headaches may last for hours, even days, and are followed by more or less long periods of intermission. They are increased by anything which increases intracranial tension, heavy lifting, straining at stool, coughing, sneezing, a jar to the head or body. During the headache the pulse is usually slower than normal. There is general apathy, and mental hebetude. This is usually a late symptom due to increased intracranial pressure.

Vomiting usually occurs during an attack of headache and is projectile in type, if the intracranial pressure is very high.

Choked disk is practically always present. In the very early stages the veins become distended and then tortuous. The papilla becomes somewhat injected and the margins, beginning usually from the nasal side, become less sharply defined. Then the arteries become less prominent on one side, usual-

ly the side on which the tumor is located. The disk then becomes swollen and projects into the vitreous humor. The arteries disappear and the veins may appear to fall back to the general level of the retina. Small hemorrhages are seen about the margins of the swollen edematous area. If no relief to the intracranial tension is given, the vascularity then diminishes, the disk becomes pale, and atrophy sets in; the swelling, however, may persist or diminish, but the vision gradually decreases and ends in blindness.

Convulsions seen in brain tumors are of three types; general convulsions, focal epilepsy, and cerebellar spasms. General epileptic seizures occur rather infrequently in brain tumors, but may occur at any period of development. They are of special interest when the attacks precede all of the general and focal signs. These epileptiform seizures cannot be distinguished in any way from so-called genuine idiopathic epilepsy.

With the exception of frontal lobe tumors, the change in consciousness and intelligence is usually quantitative. Although brain tumors are found quite frequently in autopsies on the insane, they rarely cause insanity. The patients are usually somnolent and apathetic.

The pulse is very slow when intracranial pressure is greatly increased.

Localizing Signs: There are today known to be very few silent areas in the brain. A tumor, by pressure or infiltration, leads to a definite disturbance or a loss of function of some area of the cortex or subcortical tissue, or of the brain-stem or cerebellum. By careful analysis of the progress of this disturbance of function a tumor can be localized. In a general way, in the cerebrum, a tumor is cortical or subcortical. We may say that growths which have their origin from the membranes or calvarium and compress the cortex will first manifest irritating signs and later on will produce loss of function. The loss of function will be somewhat limited, at least in the early stages of the growth. Thus a small tumor in the motor area of the cortex will at first cause a strictly Jacksonian spasm, for instance in the facial group of muscles. The repeated occurrence of internal hydrocephalus may for a long time obscure the focal symptoms. Tumors in silent areas may produce distal symptoms and cause us to make errors in localization. For example a cerebellar tumor may cause such a pressure upon the occipital lobe that localizing occipital signs are produced. It is impossible in a short paper to go into the details of tumors in individual locations in the brain. In general definite focal symptoms are produced and



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if the anatomy and physiology of the brain is clearly understood a localization of the tumor can be made by working back from these symptoms.

The diagnosis of brain tumor is based on two factors; one is the progressive loss of function of some part of the brain; the second is the fact that the tumor, as it grows, gradually adds to the volume of the cranial contents, and therefore increases the intracranial pressure. By searching carefully into the history of these cases we can usually obtain progressive increase in these factors. Spinal puncture in these cases is unnecessary as a means of diagnosis and carries with it the danger of hemorrhage or sudden death as a result of pressure on the respiratory center.

In the differential diagnosis we must consider paresis, multiple sclerosis, abscess of the brain, internal hydrocephalus, hysteria, aneurysm and nephritis in its late stages. A tumor in the frontal lobes may run a clinical course similar to paresis. In paresis the mental symptoms are progressive dementia rather than mental hebetude. The speech disturbance is syllable stumbling with marked deterioration of memory. The focal signs are sudden in onset rather than progressive. There are no signs of increased intracranial pressure and cerebrospinal fluid shows an increased cell count, a positive Wassermann and the gold curve in the paretic zone. The Argyll Robertson pupil is usually present in paresis.

Nystagmus, scanning speech and intention tremor constitute a triad of symptoms seen only in multiple sclerosis.

Latent abscesses may be difficult to differentiate from brain tumor. The periodic headaches in latent abscesses are usually associated with general malaise, a slight rise of temperature and increased heart action. There is an increased cell count in the cerebrospinal fluid and the white blood count is increased.

Internal hydrocephalus usually presents bilateral spastic signs affecting in a very gradual manner both arms and both legs.

Hysteria can usually be ruled out and differentiated as it does not conform to the physiological laws governing the functions of the various centers and tracts of the brain, cerebellum or brain stem.

Aneurysms may occur anywhere in the cerebral circulation, but are found oftenest in the middle cerebral and basilar arteries. The Wassermann test is usually positive and a bruit is present.

Uremia may cause focal brain lesions, both hemiplegia, aphasia, localized convulsions, etc., but these are always of a passing character and disappear with the passing of the uremic intoxication. The presence of albumin and casts in the urine and the high diastolic and systolic blood-pressure, together with the fleeting character of the focal symptoms, rule out brain tumor.

X-ray is of some value in diagnosis. In a few cases the tumor itself can be seen in the film,—those cases in which there is calcareous deposit. Tumors which infiltrate sinuses can be demonstrated by the x-ray; because, displacing the air in the sinus, they will cast a shadow. Separation of the sutures of the skull and general enlargement of the skull as a whole is rather common in tumors of the posterior fossa.

Surgical operations are either radical, performed with a view of removing the tumor, or remedial, viz., decompression, when the tumor cannot be localized accurately.

Autopsy Report on Patient 13335 (Dr. Woodman):—The body is that of a well nourished adult male weighing about 175 lbs., 6 feet tall and apparently 35 years of age. Body surface presents no scars. When the calvarium was removed the dura was

found to be moderately adherent and bulging throughout as though under pressure. The dura was incised, the surface of the brain was eiematous, the convolutions less distinctly marked than normal. Section of the brain revealed a tumor, encapsulated, in the corpus callosum, about the size of a half dollar. The lateral ventricles were moderately dilated. Microscopically this tumor was made up of glia cells and some fibrous tissue.—Diagnosis,—glioma.

Case No. 14210

Patient is a moderately nourished male who came into the office August 2nd, complaining of dizziness and vomiting. Present spell began about three weeks ago.

Past History: Patient has always been a hard-working man and with nothing in past history except irregular recurring spells of biliousness, lasting from several days to two or three weeks, during which time, patient vomited a great deal and at times became very weak. Patient does not think he was ever jaundiced before.

Physical examination: Moderately nourished male, 64 years of age, with a marked staggering gait and in semi-stuporous condition. He is definitely jaundiced but there is no evidence of edema or ascites. Tongue coated. Teeth in bad condition. Pupils small, irregular and react sluggishly to light. Lung borders normal, no areas of dulness—no rales. Heart is inside mammary line—both sounds present, rather faint. Peripheral blood vessels are full and roll under the finger tips. Blood pressure 110-90. Abdomen is soft and flabby, but

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patient complains of considerable tenderness in right upper quadrant. Liver is not palpable, and no definite tumor masses can be elicited.

Patient refused to enter hospital, so was examined at the laboratory on August 3rd and 4th. The following are the laboratory findings:

The Wassermann reactions were strongly positive. Kahn test positive. Kolmer titration shows this to be 10 plus positive. Icteric index 20, next day 100.

Red blood cells 4,600,000; white blood cells 8,200; hemoglobin 90%; mononuclears 26%; polynuclears 74%.

X-ray examination of this patient's gall bladder with dye showed no shadow at any time during the thirty-six hour period. Patient, however, did not retain all of the dye, vomiting shortly after the last capsule. It is very likely that the dye had not left the stomach as our stomach examination shows rather marked delay in emptying.

Examination with barium meal shows normal contour of the stomach. There is a deformity of the duodenum resembling diverticulum from the inner side of the duodenum. This shadow is not constant, and did not show on a second examination. At six hours the stomach had emptied practically none of the barium meal and there was a distinct residue at twenty-four hours. There is evidently obstruction beyond the first portion of the duodenum; at twenty-four hours the colon was outlined irregularly with some suggestion of filling defect around the first portion of the transverse colon.

We believe the evidence is quite plain for some serious lesion in the upper right quadrant.

On the morning of the 5th, patient was considerably more comatose and was sent to hospital in an ambulance. Upon entrance, patient's temperature was 97, pulse 76, respiration 20. Odor of breath was foul but not an acetone odor.

Unable to retain any fluids by mouth, so proctoclysis and hypodermoclysis were started. Unable to urinate and 500 c.c. of urine was withdrawn by catheter. Patient perspired freely after administration of fluids. His general condition did not seem to change very much during the four days observation except that he seemed to be gradually sinking into coma. At 9:45 P. M. he became dyspneic and cyanotic and died very suddenly at 10 o'clock.

Ques. What was his temperature? Temperature on entrance was 97; he was in the hospital only one day; he entered in the morning and died in the evening of the same day, and had no fever at any time.

Q. What did urine show? It was not examined.

Q. What was pulse rate? It was 76 to 80 and apparently regular.

Q. How long was he jaundiced? He seemed to have a progressive jaundice, which was more marked toward the last.

Q. What was his occupation? Rancher, living on the desert.

Q. Could he have obtained some drug or poison? There is nothing to indicate it. He had been sick about three weeks, complaining of dizziness and vomiting. On examination there was some pain in epigastrium, though he had not complained of pain. He had spells of biliousness, each spell being accompanied by vomiting and dizziness, but this had occurred over a period of years.

Q. Was there any clue as to how long he had had syphilis? No.

CAUSES OF JAUNDICE

Dr. Kimball Bannister

By jaundice we mean a yellow discoloration of the tissues of the body, evidenced by discoloration of the skin and sclera due to the presence of bile pigment and bilirubin in the blood stream. The only

source of bilirubin is in the hemoglobin of the blood; it is manufactured by the spleen and possibly by the cells of the liver itself, although some believe that the liver is simply an excretory organ for the bile. It follows, therefore, that jaundice may be caused by an obstruction to the outflow of the bile, which would give us our first classification, or obstructive jaundice. Or, it might be caused by destruction of the liver tissue itself, resulting in malfunction, which would permit the dissemination of bile pigment through the debilitated liver cells into the blood stream; this would give us the second classification, or toxic jaundice. Or, by destruction of the blood elements themselves in the blood stream, in which case it would be hemolytic jaundice.

Obstruction is caused sometimes by stones in the bile duct or common duct; it is also caused by tumors pressing upon the duct; by enlarged glands; or it is conceivable that inflammation of the duct itself might result in a plug of mucus; stricture of the duct by scar formation, either from disease or operative mistakes, may cause jaundice; traction on the duct by scars may cause it; floating kidney will occasionally cause an obstructive jaundice; cancer of the liver may cause pressure, and result in obstructive jaundice; congestion due to chronic heart failure; and lastly, cirrhosis of the liver.

The cardinal symptoms of obstructive jaundice are: (1) clay-colored stools, there being an absence of bile pigments in the feces; (2) itching; (3) pain; (4) bile pigment present in the urine and in the blood but not in the feces; (5) it gives what is known as a direct Van den Bergh test. I am not very familiar with this test, but do know that it is used to distinguish the types of jaundice, and that a direct reaction is indicative of obstructive jaundice.

The differential points in the types of jaundice

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are not very well defined. If accompanied by pain, we usually think of stones, and yet we know that a stone may give no pain; it may be due to lues, which may be accompanied by pain; and floating kidney, when it obstructs the duct, may give rise to pain. If the jaundice is painless, due to extra ductal pressure, the cause is usually cancer, and we usually find an enlarged gall bladder, and, as a rule, the intense itching comes on earlier than in other types. It may be due to pressure from enlarged glands, or aneurysm of the aorta, or to cirrhosis, or it may be due to the passive type of obstruction, and this we can usually determine by the condition of the heart and the history.

The second classification of infectious and hepatic jaundice in which there is no mechanical obstruction shows no bile present in the urine and in the feces. There are a number of different causes. The only specific infectious jaundice is what is known as Weil's disease. Then there is what is known as catarrhal jaundice, which we sometimes see in children, and in a severer form in adults. We also find an infectious jaundice in malaria which is diagnosed by the blood findings, and by blood culture in typhoid, pneumonia, etc. Then there is a postoperative type, seen most frequently in old people, following operations on the gall bladder; this is usually fatal.

The toxic forms are seen most frequently in the treatment of lues, due to arsenical poisoning. There is another form which we seldom hear of in this country, but which is written about considerably in foreign journals, due to chloroform or phosphorus.

The cardinal symptom is the presence of bile in the feces and in the urine.

The third classification is that of hemolytic jaundice, which may be familial, acquired or congenital. The acquired and familial jaundice have several factors in common; it is a chronic jaundice, with the bile pigment present in the blood stream, but not in the urine; there are no obstructive features, no slowing of the pulse, no bile salts in the blood, no itching. Anemia is common to both types, but is much more marked in the acquired form, and pernicious anemia may be classified under this form. There is an enlarged and firm spleen in all cases, and splenectomy is usually required.

Under the acquired type we may classify that due to pernicious anemia and that due to the tape-worm infection.

In general, in differentiation of the three types, in obstructive hepatic jaundice, bilirubin and urobilin are both present in the blood stream and in the urine, but not in the feces. The Van den Bergh test gives a direct positive. In infectious and toxic jaundice bile is present in the feces and urine, and in the hemolytic jaundice there is no pigment in the urine, no itching, and the indirect Van den Bergh test is positive.

All types of jaundice must be differentiated very carefully from the discoloration of the skin caused by the eating of carrots and other vegetables which have a yellow pigment; the differentiation is important in that it does not stain the sclera, and is most pronounced on the palms of the hands and soles of the feet.

Prognosis: The hemolytic types, barring those due to anemia and extreme toxic conditions are usually curable by splenectomy. The toxic and infectious types depend largely upon the severity of the infection which causes the jaundice. Where the jaundice is due to gall stones, it is usually a poor operative risk.

The operative prognosis has been greatly improved in the last few years by certain laboratory tests, as the blood can be brought practically to normal by the injection of 5 c.c. of 10 per cent calcium chloride solution on two or three succes-

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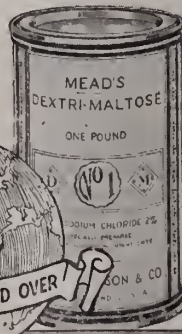
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sive days; and the administration of glucose and saline has greatly increased the resisting power of the patient and protects against the infectious type of jaundice which follows operative procedure.

DR. MILLOY:—I intended to ask Mr. Boynton to be present and discuss the Van den Bergh test, but forgot to do it. The icteric index, which is a comparison of the color of the blood serum to a scale, gives a normal range of from 4 to 6. In a color intensity of from 6 to 15, the patient will show no visible jaundice; a reading around 15 is of importance because it means that there is excessive bile in the blood. Above 15 the patient will be visibly jaundiced.

The Van den Bergh test, which is more delicate, is a quantitative test of the bilirubin in the blood; if I remember correctly, the normal amount is 1.5 mgm. per 100 c.c. The difference between the direct and indirect reactions is merely in addition of one of the reagents; it shows an immediate color change in the direct, and this change is delayed 10 or 15 minutes in the indirect. It is supposed to be indicative of obstructive jaundice when the reaction is direct. It does not always work out.

Dr. Watkins will present the autopsy report.

DR. WATKINS:—Before presenting the autopsy report, I would like to make a little more clear the differences between the direct and indirect Van den Bergh reactions. The test is intended to aid in differentiating between obstructive and hemolytic jaundice. The essential point is that the bilirubin in the blood before it has passed through the liver cells and bilirubin which has been excreted as bile and then reabsorbed into the blood stream, give different reactions. The direct reaction, which oc-

curs immediately, is given by the bilirubin of the excreted bile, and is supposed to indicate that the obstruction is distal to the excreting liver cells. The indirect reaction is given by the bilirubin before it has been acted on by the liver cells, and is found in conditions where liver cells are destroyed or diseased, causing accumulation of bile in the blood serum. There is a practical difficulty in doing this test in very warm climates, as the color comparisons are made in ethereal solutions, and ether boils at 80 degrees.

Had we realized that this case would be discussed before the staff, we would have removed the diseased organs for demonstration. Even at autopsy it is not always possible to say what the patient died of. This patient had normal lungs and normal heart. There were a few areas of fibrosis in the aorta, which we looked for when told of the positive Wassermann. The findings in the abdomen were interesting. There was a diffuse, old peritonitis, with fairly general adhesions. The liver was adherent over its entire surface; spleen was adherent with some calcific areas in its capsule. There were dense adhesions about the gall bladder and duodenum. Stomach was normal. There was a cicatricial contraction of the second portion of the duodenum with a diverticulum-like pouch. Gall bladder was small and white with constriction in the common duct. Liver was not grossly enlarged, but was knobby in appearance and paler than normal. Kidneys were not grossly diseased. There was no tumor of the pancreas, this organ appearing to be normal. Sections from kidney showed interstitial nephritis. Sections of liver showed chronic inflammatory involvement, with cloudy swelling of

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the liver cells and evidences of an acute inflammation. There were some giant cells.

Cause of death could be set down as toxic jaundice with cholemia, caused by acute hepatitis. Contributing causes were chronic hepatitis, with partial obstruction in common duct; chronic cholecystitis.

DR. MILLOY:—This man had been sick for two weeks, vomiting every day. Toward the last he could retain no fluid whatever and this condition together with the intense heat of the desert may have something to do with the rapidly fatal ending. He was completely dehydrated.

DR. MILLS:—The giant cells were more like the giant cells of repair than those found in syphilis.

DR. PALMER:—This is a condition that we occasionally see as a result of chronic obstructive jaundice, and we do not operate early enough. Then, when we do operate, there is not enough liver left to function and the patient goes on to slow death. Unless we do an autopsy to discover the destruction of liver cells, we do not know what they died of.

III—Case No. 13840

Patient is a moderately nourished male, about 60 years of age. Has worked in mines practically all of his life. Has never had any illnesses or chronic trouble of any kind during his entire life.

Present Complaint: Difficulty in swallowing which began three or four weeks ago. No pain whatever.

Physical Examination: Well developed male. Teeth artificial.

Chest: Well developed. No dulness. No rales.

Heart: Not enlarged—both sounds present and equal. Blood pressure 120-100.

Abdomen: Rather distended but no areas of tenderness or masses elicited. Knee jerks are present and quite brisk. Attempts to pass stomach pump, resulted each time in an obstruction to its passage into the stomach at about the cardiac orifice.

The following are the laboratory findings:

Wassermann reactions were negative.

No. 645889—X-ray Examination May 28. The examination of this patient's esophagus under the fluoroscope showed contraction of the lower portion, and this contraction is evidently spasm as it could be seen to distend and then contract. The area of contractions is about two inches long just above the stomach.

The stomach was distended with gas and is not clearly outlined because of insufficient barium having entered it.

Chest films show extensive old irregular fibrous densities around the hilum of each side.

No. 56811—June 6th (Ewald)—A Microscopic examination negative. No free acid; total acidity 32. Blood test positive by Weber.

No. 56934—Blood: The Wassermann reactions were negative. Icteric index 4. Red blood cells 2,910,000. White blood cells 10,000; hemoglobin 65%; polynuclears 72%; mononuclears 28%.

No. 49006: June 5th: In the examination of this patient's esophagus and stomach we show less spasm of the cardia than was shown at the previous examination. The drink entered the stomach more readily. The second meal entered more readily than the first one.

The barium leaves the stomach very rapidly and reaches the splenic flexure at six hours. The stomach is transverse in shape with an hour glass contraction. Cardia is much distended with gas, the antrum and pylorus being contracted and hypermotile.

We were unable to demonstrate definite organic disease of the stomach.

After first examination cardio spasm dilator was used, after which patient thought he could swallow considerably better. A few days before entering hospital patient began to have marked gaseous distention of abdomen. There was no evidence of

any fluid present. The distention became so intense that patient's abdomen resembled a paralytic ileus. There was no vomiting at any time.

Patient entered the hospital on the 11th in intense pain and died in less than twenty-four hours.

DR. MILLOY:—Dr. Hamer will present a discussion of the symptoms of cancer of the stomach.

EARLY SYMPTOMS OF CARCINOMA OF STOMACH

Dr. J. D. Hamer

Malignant lesions, of cardia and fundus frequently offer difficulties in diagnosis. This is especially true of early cases, before onset of anemia, cachexia, and marked loss of weight. Those three symptoms are those given so much prominence in text books, and those offered to the medical student as his only guide to diagnosis of gastric cancer, in the presence of gastric disturbances. The average case seen in a hospital is beyond operative intervention, possibly through a delay in diagnosis. Why? Because there is often a latent period in the development, which gives no signs or symptoms. The patient either does not visit a doctor, or the doctor has no data upon which to base an opinion. This period may last from four to eight months. Then, too, physicians must be educated to a knowledge of early cancer, and not late cancer.

The symptoms of cancer of lower esophagus, of cardia, or of fundus, are not in each case a clear cut entity, varying with situation of lesion, but are very similar in all three situations. Nor are the symptoms distinct from such conditions as cardiospasm, spasm of esophagus, or cancer of other parts of the stomach. The symptoms of carcinoma of fundus are often referred to the esophagus, while symptoms of cancer of cardia are generally gastric in nature. Frequently cancer of fundus gives rise to symptoms which point to esophagus as the of-

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fending organ, and the associated spasm of some portion of its terminal end leads to a diagnosis of cardiospasm or spasm of esophagus. On the other hand, symptoms may suggest a gastric origin and x-ray examination reveal irregularity of duodenal cap which may be only an expression of the irritability of stomach. One must always bear in mind the possibility of gastric cancer in the presence of esophageal symptoms which may be the earliest symptoms.

Albee states that in almost every case of stomach cancer, there is a latent period of several months duration, and the stage at which the patient becomes aware of disturbance may be considered the second stage. Especially is this true of cancer of fundus, corpus and lesser curvature. Friedewald divides symptoms into two groups. First, the onset symptoms, which are sudden in a large proportion of cases, and gradual in a smaller number. In a series of 1000 cases, the onset was sudden in 77 per cent, and only 23 per cent gave history of previous disturbance. Deaver describes two clinical types; one with history of long duration, with ulcer symptoms gradually changing to cancer; the other group, in which the onset is insidious, with vague symptoms of indigestion and distress.

The symptoms of which the patients usually become aware first, are inconstant, indefinite and transitory; occasionally they are permanent. Anorexia is fairly constant (85 per cent), and dislike for certain foods, especially meats; with it there may be a fetid, bad, pasty taste, and insalivation. Dull pain is occasionally present, generally in the form of a heaviness, distention and discomfort; sometimes it radiates to the back and shoulders; it occurs often independently of meals and varies in the same patient. In cancer of the cardia pain may be felt to the right of epigastrium, behind the sternum or in the back, comes on shortly after or

even during meals and is persistent. It differs from pain in cancer of the esophagus in that it does not occur during passage of food. Severe pain generally indicates widespread growth and adhesions. Gas eructation is fairly constant in cancer of the cardia, with bitter taste in the mouth, and regurgitation of small quantities of food. Vomiting is a constant symptom only in cancer of pyloric region and is usually a late symptom of the retention type with stasis. Vomitus may be slimy, mucoid, blood streaked or simply food, partially digested, fermented or putrefactive. Hematemesis, when it occurs, is usually small and persistent; massive hemorrhage is generally a late occurrence; oozing gives coffee-ground formation or there may be melena from passage of blood into bowel; the tendency of hemorrhage to persist in spite of treatment is of importance in diagnosis. Dysphagia is caused by obstruction of the growth to passage, whether situated at the cardia or whether it has spread to the esophagus from the fundus, or to spasm which may be present before the growth is large enough to cause obstruction; dysphagia in a patient past forty years of age is a symptom of grave importance. A slowly developing dysphagia, getting progressively worse, with remissions only at first, if at all, should arouse suspicion. The dysphagia may be brought on, at first, only by swallowing a large, hard bolus. Loss of appetite, gas eructations, pain and dysphagia are the only frequent and early symptoms. Only the last is suggestive of esophagus, cardia or fundus.

DR. MILLOY:—The main features of this case were the difficulty in swallowing, the absence of pain and, suddenly two or three days before death, distention of the stomach; the abdomen became like a drum, altho there was no evidence of fluid.



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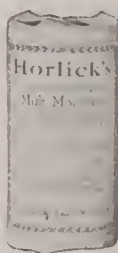
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Ques. How long before the distention was the dilator used? About a week.

Ques. Was the mass viewed with the esophagoscope? There was no mass. X-ray examination showed an apparent constriction of the cardia which later disappeared, so that it was apparently cardiospasm.

DR. C. A. DONALDSON:—The rapid emptying of the stomach ought to direct more attention to the pylorus. The normal pylorus does not permit rapid, continuous emptying of the stomach and very frequently a beginning cancer shows, as its only evidence, the fact that the pylorus is not functioning. This report does not say whether the emptying was continuous or not. Furthermore cardiospasm is frequently due to cancer of the stomach, so that dilatation should be used cautiously.

DR. MILLOY:—No one has offered an explanation for the acute distention of the stomach or the absence of vomiting. We will have the autopsy report.

DR. WATKINS:—I am glad that Dr. Donaldson has favored us with this brief discussion on the x-ray findings. Dr. Donaldson has settled quietly among us and perhaps few of you know that he has been for a decade or more one of the leading roentgenologists of the country. He was formerly located in Minneapolis, but about two years ago was forced to give up his specialty; he has entered into general practice on the south side. Any comments by Dr. Donaldson on x-ray findings are accorded the utmost respect by me. The findings mentioned by him should have warned us that we had a malignant stomach; that they did not so warn us is one of the reasons I do not like to talk about this autopsy.

The patient had a large carcinoma of the stomach involving the fundus and extending upon the lesser curvature. The esophagus and cardia were not involved, the esophagus being perfectly smooth and the visible lesion beginning about an inch from the cardiac orifice. So far as the esophageal constriction is concerned, it was purely spasm. The infiltration extended into the corpus of the stomach very much like a linitis type of lesion. There was no pyloric lesion and no explanation for the stomach distention. There were localized areas of necrosis involving the small bowel with ulceration of the mucosa in these areas; these were due to thrombosis in the mesenteric vessels.

A general discussion relative to the possibility of securing more autopsies in the hospital was called for. The hospital announced that they were preparing a room for autopsies in the hospital and hoped to have the support of the doctors in bringing their record up to the American Medical Association requirements of thirty-five per cent, in order to qualify for recognition as entitled to internes.

Adjournment at 10 p.m.

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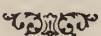
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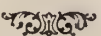
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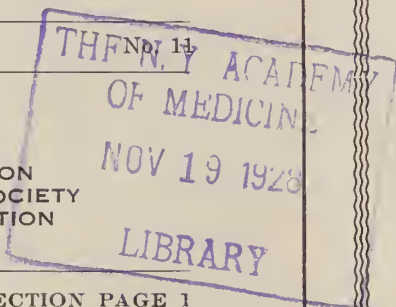
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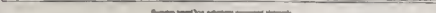
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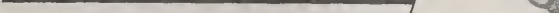
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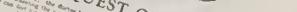
Science accepted the challenge. Less than thirty years ago a group of men under the leadership of Doctor Walter Reed set out for Cuba to undertake the task. After months of intricate research, after many daring experiments, at the cost of the lives of several of their number, they proved

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


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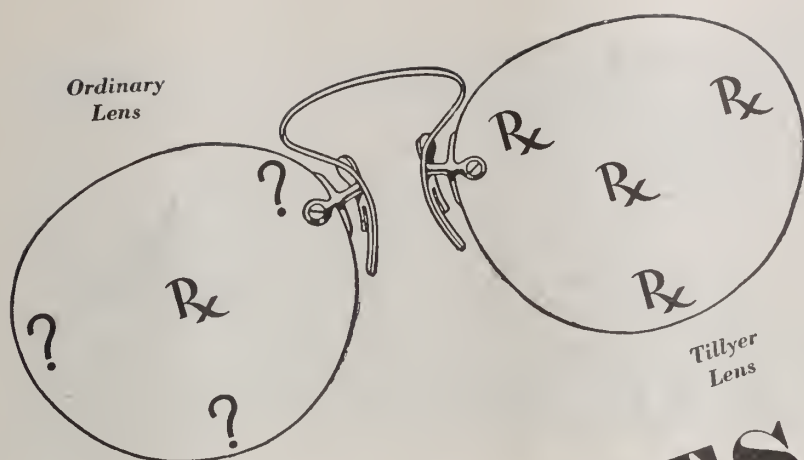
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CLASSIFICATION AND DIAGNOSIS OF FEEBLEMINDEDNESS

J. G. WILSON, Surgeon,
U. S. Public Health Service
El Paso, Texas.

(Read before The El Paso County Medical Society, at El Paso, Texas, March 19, 1928, and before the Texas State Medical Association, at Galveston, Texas, May 8-10, 1928. Published, also, in the Texas State Journal of Medicine, for November, 1928.)

By feeble-mindedness we mean "a state of restricted potentiality for or arrest of cerebral development in consequence of which the person affected is incapable at maturity of so adapting himself to his environment or to the requirements of the community as to maintain existence independently of supervision or external support."

This is the sociological definition of feeble-mindedness. It is quoted from Tredgold and is identical with that contained in the English Mental Deficiency Act of 1913. In the United States we have no Federal Act defining feeble-mindedness and the various state laws recognize the condition without setting it forth in scientific terms. However, the American Association for the Study and Prevention of Feeble-mindedness, The National Committee for Mental Hygiene, and such eminent individual American authorities as Healy, Goddard and Terman, all agree that the definition should in fact contain the main points as set forth in the English law.

It will be noted that this definition embraces two main points:

(1) The mental defect must be due to some interference in the natural development of the brain, thus not only clearly differentiating it from dementia and the insanities but also making it imperative that the cause exist from birth, infancy or early childhood.

(2) The defect must be of sufficient gravity to prevent the individual assuming his proper place in society without the care and supervision of others.

Although there is no sharp clean-cut

dividing line between the higher grades of feeble-mindedness and the lower degrees of normal mental ability, there is a general consensus of opinion that the differences are sufficient to warrant the division of all persons into eight main classes according to intellectual ability. That is, we are, all of us, whether sane or insane, either

1. Idiots
2. Imbeciles
3. Morons
- or
4. Borderline cases
5. Dullards
6. Normals
7. Supernormals
8. Geniuses.

The term, Feeble-mindedness, then, is a generic term embracing three grades or degrees of inherent mental defect, to-wit: idiots, imbeciles and morons.

Sociologically considered, and speaking in general terms only, an idiot is a feeble-minded person whose defect is so great that he is unable to guard himself against the common physical dangers of life. From the same standpoint and in the same general terms, an imbecile is one who is able to guard himself against these dangers but requires aid or constant supervision in doing the simplest tasks, while a moron can do routine tasks without supervision but is unable to plan or meet unexpected new situations without aid and supervision.

But these sociological or industrial definitions do not go far enough. Many feeble-minded persons living in crude or primitive rural environments are able to pass as normal among their own fellows, but, when removed to the more complex milieu of our average cities or towns and compelled to compete with persons of higher intellectual attainments, their inherent deficiency becomes evident.

Therefore, in order to have a clearer idea of just what constitutes an idiot, imbecile, or moron, some purely psychological measuring stick is necessary. We have such an instrument in the standardized performance

tests of Binet-Simon. These have been modified by Terman of Leland Stanford University and it is this modification which is regarded by the majority of American workers as the most trustworthy for the examination of our own native born.

From an application of these tests we determine the subject's so-called "mental age" or performance ability", and his "intelligence quotient." Measured in this way, an adult idiot's mental age or performance ability ranges from that of a normal newborn to a normal three-year-old, while an imbecile's ranges between three and seven

years and a moron's between seven and eleven.

The intelligence quotient, familiarly spoken of as the "I. Q." is the figure obtained by dividing the mental age by the actual or chronological age. According to this standard idiots have an intelligence quotient ranging from 0 to 20; imbeciles, 20 to 50; morons, 50 to 70; borderline cases, 70 to 80; dullards, 80 to 90; normals, 90 to 110.

The following table summarizes what I have just said about the various grades of mental defect and at the same time indicates their etiology and chief clinical varieties.

TABLE 1
CLASSIFICATION OF THE FEEBLEMINDED
ACCORDING TO

I. MENTALITY	ETIOLOGY	III CLINICAL VARIETY
<p>1. <i>Morons</i> (I. Q. 50-70) Performance Ability 7-11 Years. Can do routine tasks without supervision, but can not plan.</p> <p>2. <i>Imbeciles</i> (I. Q. 20-50) Performance ability 3-7 years. Require supervision and aid in doing the simplest tasks but can guard themselves against ordi- nary dangers.</p> <p>3. <i>Idiots</i> (I. Q. below 20) Performance ability under 3 years. Unable to distinguish and avoid ordinary physical dangers.</p>	<p>1. Primary or inherent (90%) (Characterized by path- ological germinal varia- tions: Due to defective heredity).</p> <p>2. Secondary or Accidental (10%) (Characterized by gross cerebral lesions or de- fective cerebral nutri- tion: Due to toxic or mechani- cal causes, specific gland- ular defects, or deficient sensory stimulation).</p>	<p>1. Simple</p> <p>2. Microcephalic</p> <p>3. Mongolian</p> <p>4. Epileptic</p> <p>5. Amaurotic</p> <p>6. Syphilitic</p> <p>7. Hydrocephalic</p> <p>8. Paralytic</p> <p>9. Cretinoid</p> <p>10. Nutritional</p> <p>11. Isolated</p>

The next table, prepared by the National Committee for Mental Hygiene, elaborates the etiological factors mentioned in Table 1.

TABLE 2

CAUSES OF MENTAL DEFICIENCY

Heredity—

Mental defectiveness
Insanity
Epilepsy
Alcoholism
Syphilis

Congenital Defects—

Hydrocephalus
Microcephalus
Defects in cerebral substance
Defects resulting in mental deprivation
Blindness
Mutism
Deafness

Injuries During Birth—

Fracture of skull
Compression of brain
Cerebral hemorrhage
Asphyxia

Diseases during Infancy—

Acute Infectious diseases:
Scarlet fever
Pneumonia, etc.
Diseases directly affecting the brain:
Infantile cephalitis
Meningitis
Syphilis
Infantile convulsions, etc.
Epilepsy

Malnutrition

Thyroid Insufficiency

Injuries during Infancy

There is no abnormal physical condition in which an exact diagnosis is more important than in feeble-mindedness, for upon this

feature hangs, (1) the possibility of cure of the individual himself; (2) the prevention of much crime and economic waste; (3) the moral responsibility of many delinquents; (4) the prevention of the propagation of feeble-minded stock.

By reference to Table II, one may infer that cure is not entirely out of the question in a certain small proportion of cases—notably, those dependent upon deprivation, such as congenital blindness and deafness, and to a lesser degree those caused by syphilis, birth injuries and thyroid deficiency—and that proper training will greatly relieve the situation in all cases except the lowest grades of idiocy.

But aside from cure or relief of the condition itself, the greatest importance attaches to the prevention of crime and economic waste.

These persons should be classified and properly disposed of early in life, long before they have wasted the tax-payers' money and the teachers' efforts in a vain attempt to give them an education which they are incapable of receiving, and long before they have had the opportunity to become juvenile delinquents.

While the importance of proper diagnosis is evident, it is not so easy to make as might at first appear. Mental deficiency must be differentiated from the lowest grades of normal development and from the borderline cases. It must also be differentiated from certain eccentricities and transient personality defects of adolescence, and those forms of dementia which occur in epilepsy, juvenile paresis, and dementia praecox. Then, too, the social mal-adaptation or failure to progress in school may not be due to inherent mental deficiency at all, but solely to lack of interest, poor instruction or some removable physical defect. All these possibilities must be held in mind and eliminated before forming an opinion.

The character defects and intellectual status of the subject's ancestors and collateral relatives should be carefully considered and balanced with his own sociological and industrial history. After this is done, his "mental age" and "intelligent quotient" should be obtained and all the evidence weighed together, not unduly stressing one factor to the exclusion of others.

Some weight should, of course, be given to the general appearance, but in doing this it should be remembered that normals frequently look idiotic and that the feeble-minded often look normal.

The coincidence of paralytic conditions and mental defects does not necessarily mean that the latter is dependent upon the

former. The same causes, nutritional or congenital, which were responsible for an imperfectly developed cerebral cortex, may result in an inadequate musculature or malformed osseous system. The gait of the lower grades of the feeble-minded is notoriously slouchy and incoordinated and club feet and paralyses of various degrees often exist without gross cerebral or spinal lesions. Cerebral decomposition and orthopedic operations on the feeble-minded should therefore be undertaken in only very carefully studied and selected cases and the orthopedist should not lay too great stress on the purely objective physical deformities, for they may simply fall into the general classification of "stigmata"—incapable of correction and of diagnostic significance only.

In regard to stigmata, their presence may or may not have diagnostic import. One must be very careful not to unduly emphasize the significance of supernumerary fingers, simian heads, or abnormal ears.



This young man, shown in Fig. 1, reported by Knox in *The New York Medical Journal*, June 14, 1913, was suspected of feeble-mindedness because of his general appearance as he came along the line at Ellis Island, and was turned aside for a complete mental examination (note the shape of the



head and the malformed helix). Yet a competent mental examination showed him to be of normal mental balance, above the adult average for his race, and able to speak three languages fluently.

However, when many different stigmata occur in the same person they usually have marked significance. A cleft palate alone means nothing; but a cleft palate, a clubbed foot, supernumerary digits and small receding forehead, in the same individual, would very likely betoken a deficient mental as well as physical development. No mental tests are necessary to create the belief that the man shown in Fig. 2, described by Tredgold in his work on Mental Deficiency, is sadly lacking in cerebral ability. Here we have a combination of stigmata which would arouse anyone's suspicion. He is microcephalic, has distorted ill-shapen teeth, asymmetrically placed orbits, a supernumerary thumb and limply hanging lower jaw. His whole attitude betokens a mental defect and we are not surprised to learn that he was in fact an imbecile who was unable to talk and required constant care and supervision.

But even a silly attitude accompanied by stigmata such as this man displayed, must not be interpreted alone.

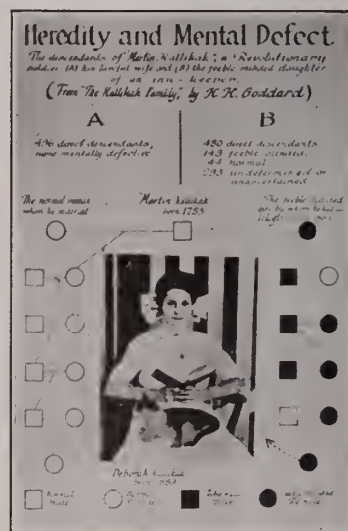


The girl shown in Fig. 3 certainly looks silly enough, with her small pig-like eyes, asymmetrical face, and thick wrinkled skin over the forehead. Any medical inspector of immigrants would be justified in turning her aside for a mental examination, and yet she was just a normal Slavic peasant girl who had not been in the United States long enough to learn the art of disguising an

ugly face by framing it with marcelled hair, stenciled eyebrows and carmine lipstick.

Children convalescent from acute illnesses are frequently so dull and stupid that an inherent mental defect is simulated.

I think any one would have said that the appearance of a child admitted to my service at the contagious disease hospital at Ellis Island indicated a low grade of mental defect. She was suffering from a severe whooping-cough, followed by suppurative otitis media—upon which an unusual train of mental symptoms developed, characterized by great apathy, stupidity and katatonic posturing. But as her physical condition improved her mentality also became normal and she was eventually discharged as sound in both mind and body. The history of the case was published in great detail in the *Journal of Abnormal Psychology*, July, 1926, and is another illustration of the necessity for careful study and prolonged observation before making a diagnosis of feeble-mindedness.



In forming our conclusions about the feeble-mindedness of a given individual, we are greatly helped by a complete family history. Ninety per cent of these cases fall in the hereditary group and, if we could always obtain a genealogical tree with biographical data extending back four or five generations, our task would often be greatly simplified. The influence of heredity is graphically shown in Fig. 4, which summarizes Goddard's Study of the Kallikak family. Here we have four hundred and ninety-six direct descendants from a normal father and mother with no feeble-mindedness in any of them. These are contrasted with four hundred and eighty descendants from the same normal father and his feeble-minded paramour, of whom one hundred

and forty-three were classified by Goddard as distinctly feeble-minded. The last in the line was Deborah Kallikak—a high grade moron whose picture is shown here and whom I had the privilege of seeing personally when she was an inmate at the Vineland Training School fifteen years ago. You can see from her picture that she was a pretty, attractive-looking girl, with nothing in her general appearance to indicate low mental ability.

And this brings me naturally to the last and most important point I wish to make, and that is the actual value of the performance test which I have mentioned.

Judged by the Binet-Simon tests, Deborah Kallikak was a high-grade moron; judged by the manner in which she performed her tasks at the Vineland Institute she was also a high-grade moron. Her genealogy, with its long line of social misfits, also seemed to substantiate this diagnosis. But, in my opinion, the use of performance tests alone would not have been sufficient to fasten the moron tag upon her. Performance tests, especially the Stanford Revision of the Binet-Simon tests, when used by persons who know how to interpret them, are of enormous value. I would compare them to the stethoscope in making a diagnosis of tuberculosis. There are some cases of pulmonary tuberculosis which competent men correctly diagnose on auscultatory evidence alone, but they are not the doubtful cases. There are some cases of feeble-mindedness which competent men can undoubtedly correctly diagnose on the evidence of performance tests alone, but they are not the borderline cases. And above all one must be careful not to draw hasty conclusions from inability to perform one or two so-called key problems.

One of the patients whom I am going to show you tonight not only looks the part, but she failed to arrange the pieces in Knox's imbecile form board test—a thing any normal five-year-old child should do. However, when put through the whole series of Stanford-Binet-Simon tests she showed an intelligent quotient of seventy-two and one-half and her real troubles seem to me to be concerned with her personality and environment almost as much as her mental make-up. Accurate diagnosis of her case is difficult but she is probably a borderline case.

In making a diagnosis, one must also be careful not to let his opinions be swayed because the subject is ignorant about public matters or news which he himself may consider vital.

During routine mental examinations of

immigrants, I recently asked a series of forty young adult Mexicans, who was the president of their country. Thirty-one knew, but nine did not know, and yet these nine were mentally normal, as evidenced by their ability to perform the tasks involving foresight and planning. They simply did not care who the President of Mexico was, and that was the whole explanation.

So, in conclusion, I would say that performance tests have great value. Badly informed persons may ridicule them, just as Laennec's stethoscope was ignored and ridiculed when first introduced, but these tests have come to stay just as surely as did the stethoscope, and it is just as much the duty of the mental examiner to learn how to use and interpret them as it is the duty of the chest specialist to perfect himself in the use of the stethoscope.

Patients of the following types were exhibited.

1. Primary. Idiot (high grade); due to glandular deficiency.
2. Secondary. Imbecile (medium grade); paralytic type.
3. Primary. Moron (low grades); simple types due to hereditary defects.
4. Borderline cases.

CASES

IDIOT. This little boy is five years old. Unfortunately I know practically nothing of his family history. The records of the Salvation Army Home, where he lives, show that his mother is a Mexican woman, and that her husband is an American soldier who has deserted her. There are several other children older than he and perhaps one or two younger, although on that point I am uncertain. All the other children are said to be normal. The diagnosis of the *degree* of mental defect in this case is easy. He is an idiot. He cannot feed himself. He cannot make his wants known. He wets his bed and clothing the same as an infant. He utters no intelligible sounds, speech is not even attempted. However, the primitive feelings of hunger and thirst are present, and he shows some signs that indicate the possibility of eventually training him so that he can indicate his desires to go to the toilet. His idiocy is, therefore, not complete, for a *complete* idiot is nothing but a lump of flesh, lacking not only in all the fundamental organic instincts but also without any powers of attention and with complete incapacity for being taught.

The etiology of this case is especially interesting. At first glance one might think he was a cretinoid, but careful examination shows that he does not fall in that class. Although he undoubtedly represents some type of glandular deficiency, he lacks the typical cretinoid features. His skin is fine and soft to the touch; his nose is not broad and flat; his orbits, instead of being wide apart, are rather close together; his tongue is not fissured. What one is most impressed with is his fatness. His body could have served as a model for one of Michael Angelo's cherubs. Note the rounded sloping shoulders, the feminine hips, the marked amount of adipose tissue around the mammary glands, and the soft rounded contour of arms and legs. This is a case in which one is justified in suspecting deficient secretion from the pituitary gland. He certainly presents the opposite

features from acromegaly, and if, as he approaches puberty, the genitals fail to develop, his stature remains dwarf-like and he shows an abnormal sugar tolerance, our diagnosis will be confirmed, and we can definitely label him as mental defect accompanied by the syndrome of *Frohlich*, or *dystrophia adiposo-genitalis*. In the meantime, an x-ray might show some abnormality in the size of the sella turcica, and the administration of pituitary extract might possibly have some beneficial action on his condition. He will be transferred to the Texas State Institution for the Feeble-minded within a few days and undoubtedly a more complete study will be made of him there.

IMBECILE. This girl is thirteen years old. She is suffering from a spastic paralysis of the lower limbs which, at first thought, one might suppose to be dependent upon a birth palsy. However there is no history of difficult labor and the positive evidence for primary defective germ plasm is so great that I believe that both her paralysis and mental defect have a common cause in a defective development of the central nervous system. She has a brother who does not progress at school as rapidly as he should, whose intelligence quotient is only 76.4, and who needs further study before he is labelled "normal." The mother is a credulous, ignorant woman, who impresses me as being a moron, although I made no formal examination of her and am not able to say positively that such is the case. However, the social history of the family indicates inability to adjust its members to adverse conditions. Domestic troubles and economic difficulties are so great and constant as to suggest the possibility of inherent mental defect on the mother's part as the primary cause of all their troubles. This thirteen-year-old daughter is an *imbecile*. In spite of her smiling face and winning ways, she is totally incapable of performing the simplest tasks without supervision or aid. At the time of my examination she could not count to ten without making a mistake. Here are some of her answers to questions:

2 plus 2 equals—3.

3 plus 1 equals—2.

3 minus 1 equals—4.

This problem was illustrated concretely by asking her if she had two apples and some one gave her two more, how many she would then have, and so on through the list, but the result was the same. She had no idea whatever of numbers. Her power of attention was of a very low order and her ability to discriminate between different kinds of diagrams practically nil. A diamond, a square, and a parallelogram all looked alike to her, and when asked to copy these figures from memory after they had been exposed to her, she made a rude shaped square for all of them. She cannot read or write her own name. Her speech is also defective, and, according to her mother, she made no effort to talk until she was five years old. When I examined her five months ago, I estimated her mental age as about five years and stated that I did not believe it was worth while to send her to school any more. I have not seen her since then until today, but I see no reason to change my opinion.

MORON. This little woman is only thirteen years and seven months old. I want you to take a good look at her and her four-months-old baby. The baby is, to all *external* appearances, perfectly normal, and so, I think, is the mother. She is a bright attractive looking person. She went through the six year old tests of the Stanford revision of the Binet-Simon tests like a breeze, answering every one of them—and then she stopped—stopped suddenly and completely. She failed on every one of the seven-year-old tests. Graded by her performance ability she is only six years old and her intelligence quotient is

forty-six. She is, therefore, from this standard a high-grade imbecile, but her ability to perform routine tasks, and to feed and look after her own baby (under supervision), together with the fact that her intelligence quotient is so near the dividing line between imbeciles and morons, makes me inclined to place her in the latter class. In a few days she will be placed in the Texas institution for feeble-minded women of child-bearing age. This case is especially interesting from its social aspects. Had proper examination been made of this girl's mentality during her first two years of school life, and the courts taken the proper action, she would have been put in an institution before she had an opportunity to bring a child into the world with no one to support it, and which in spite of its normal appearance, in all probability carries the defective germ plasm of its mother.

BORDERLINE CASES.

1. The red-headed American girl who had the idiot in charge, is a borderline case. Her emotional reactions are quite strong. She has considerable insight and resents any imputations of her ability or character. Had she suspected that she herself was on exhibition, she would not have come here tonight. She became pregnant at the age of twelve years and has a healthy two-year-old baby. She looks more than her fourteen years. Graded by the Binet tests, Stanford revision, her mental age is ten and one-half years and her intelligence quotient 74.5. This puts her in the borderline class, and I think her social history substantiates the diagnosis. She is on the ragged edge of legal responsibility for her actions. She accused a seventy-year-old man of being the father of her child. Although the court substantiated her accusation, the sympathy of the community is with the old man, who stoutly maintains his innocence. These borderline cases are often extremely difficult to diagnose. Some claim that such persons are fully responsible, others that they have no responsibility. I think the truth lies between. Just as they are halfway in the matter of mental ability, so are they halfway in the matter of responsibility. In other words, they do have *some* responsibility and are in a degree accountable for their acts, but not to the same degree as the clearly normal.

2. The Mexican girl is thirteen years and four months old. She is the one I referred to as having failed to pass the Form Board Test for Imbeciles. You will note that she has a rather dull stupid appearance, and some facial asymmetry. She is in low first at school and not doing very well even in that grade. However, in spite of this and the fact that she failed on one particular test which is thought by some persons to have great diagnostic value, her performance tests on the Stanford-Binet-Simon scale indicate that she has a mental age of at least ten years. I am not through studying her case yet, but I believe that her mental abilities are greater than her actual school performance indicates. Of one thing, however, I am sure, and that is her potential danger to herself and the community. Any healthy thirteen-year-old girl who is still in low first after four years' schooling, and who fails to adjust immediately all the pieces in such a simple puzzle as Knox's Imbecile Form Board is either feeble-minded or mal-adjusted in her emotional spheres, and I doubt very much the wisdom of having her continue attending the public schools. She should be at some kind of manual labor and her training be along these lines almost to the total exclusion of purely academic learning. In other words, here is a girl who, our common sense tells us, needs the benefit of institutional training even though we are unable to definitely place her in the feeble minded class.

ORTHOPEDIC TREATMENT OF INFANTILE PARALYSIS

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Infantile paralysis, or anterior poliomyelitis, is a comparatively recent affliction throughout the world, only three outbreaks having been discovered previous to 1885. The disease first appeared as an epidemic in Scandinavia, with most of the smaller outbreaks appearing in Sweden. After 1904 it became at times most extensive in that country, with 1199 cases reported in 1905, and 5000 in 1912. In our own country the first large epidemic was in 1894, in Vermont, with the disease being endemic in that state ever since, increasing occasionally to epidemic form, as shown by the report of 300 cases in 1914. New York state contributed 2500 in 1907, and over 9000 in 1916. During the last fifteen years poliomyelitis has been recorded in every state in the union, so that now the virus is widely distributed. In this part of the country the disease has been, fortunately, sporadic. During the past two years there have appeared each fall definite waves of infantile paralysis, with the result that, during the past eighteen months, forty-three cases of poliomyelitis have been admitted to Children's Hospital in Denver.

For the purpose of description, infantile paralysis may be divided into three definite phases: the acute or febrile, the convalescent or early paralytic, and the chronic or late paralytic stage, each with its definite symptomatology and general plan of treatment. I wish today to outline especially the orthopedic treatment of the disease, merely mentioning the initial measures of therapy.

In the acute or febrile phase, manifested by fever, pain, and meningitic disturbance, and lasting for some six to eight weeks, the treatment is symptomatic or preventive, for it must be recognized that paralysis is not an invariable feature of the disease, probably over fifty per cent of poliomyelitis cases not showing any paralysis. On account of this lack of paralysis in many cases of poliomyelitis, it is believed that innocent carriers play a large part in the spread of the disease, whether these carriers have had a mild attack or whether they are healthy persons that have associated with the sick. In the acute attack the child should be put to bed, isolated, and generally kept quiet. A quarantine period of three weeks should be insisted on. For the preventive treatment much has been written. Immune horse serum of Rosenow has been administered with probably good effect in many instances.

This immune serum from the horse depends upon the injection of a cultivated polymorphous streptococcus, originally found, not in the cerebro-spinal fluid or blood, but in the brain and cord of fatal cases. There is, however, much question as to the identity of this organism as the causal factor of poliomyelitis. Flexner and Noguchi of New York, on the other hand, have succeeded in growing a minute anaerobic globoid body from poliomyelitic tissues, which, when injected intracerebrally, intraspinaly, or intraperitoneally into monkeys, produces experimental poliomyelitis, and which is again obtainable from the injected monkey's central nervous system. Flexner has also shown that immune bodies are present in the blood of recovered cases. However, to date, the most practical serum to use seems to be convalescent human serum, preferably from cases having contracted the disease two to six months previously, though cases of five years' standing possess serum of some immunity. Though the literature, for the most part, advises the introduction of the serum intraspinaly and intravenously, Frank Dickson of Kansas City has for the past few years been introducing either the whole blood or the blood serum intramuscularly. He advises the injection of some thirty cubic centimeters of blood, repeating the dose two or three times within twenty-four to forty-eight hours. He reports good results. However, upon the whole, there is yet no standard preventive treatment, so that much more experimental work must be done along this line. The strictly orthopedic treatment in this first stage of poliomyelitis is limited to keeping the patient flat on his back in bed, maintaining the feet at right angles with the legs, and the legs in full extension at the knees.

But with the second and third stages, the orthopedic treatment of infantile paralysis is more concerned. The second phase, or convalescent or early paralytic stage, begins with the conclusion of the fever and the end of the period of muscle tenderness and lasts until the paralysis becomes stationary, extending over a period of some two years. During this time, orthopedic treatment is, for the main part, mechanical, consisting in two general measures: the prevention of the development of deformity and the restoration of muscle power.

The majority of deformities can be, and should be, avoided. When we remember that not only is partial paralysis of a limb more common than total paralysis of a limb, but also that the individual muscles are more commonly partially paralyzed than totally paralyzed, we are reminded by the

pathologist that the reason is easily found. The nerve cells which supply the various muscles lie in the anterior horns of the cord in longitudinal columnar bundles. The muscle, then, deriving its innervation from a group of cells of several segments, loses only those centers destroyed by the transverse lesion, which is the result of the virus of poliomyelitis reaching the cord by means of the blood approaching the anterior horns by horizontal branches of the anterior spinal artery. Thus it is logical to reason that a partially paralyzed muscle may be materially helped by further development of the remaining centers, and by further development of other muscles of the same muscle group. In this way can be explained the occasional complete recovery of a paralytic case.

Deformity occurs as the result of various factors: first of all, and most important, by muscle unbalance, as when an extensor muscle is paralyzed but the opposing flexor muscle is not affected, resulting in a flexion contraction. If this original muscle unbalance is not corrected, ligamentous contraction makes the deformity more permanent. Improper attitudes in bed, as sitting up, may lead not only to various degrees of lateral curvature, a most obstinate problem, but often to flexion contraction at the hips, or at the knees if the latter are allowed to bend when pillows are placed underneath them—a most common error that we find. Then, too, early standing may promote scoliosis, while foot deformities may result from weight-bearing if certain muscles of the lower leg are involved. Gravity is another factor to be looked out for, in that it is often responsible for foot-drop. But to allow deformity to begin at this stage, in most cases is inexcusable, though it is true that the insidiousness of its progress is often responsible for its development. It is also true that, in many instances in spite of all precautionary measures, we find deformity present, as in gastrocnemius paralysis, where the contraction of the dorsiflexors of the foot has produced the calcaneus or prominent dropped heel.

The prevention of deformity, then, is the first practical consideration in the convalescent or preparalytic stage. A thorough muscle examination should be made to determine to what degree the various muscles have been affected. At the Children's Hospital in Denver a muscle chart is used on every case for the purpose of recording the amount of muscle power still remaining. A scale from zero to five is used, so as to classify the muscle as totally paralyzed, trace, poor, fair, good, or normal. This chart is useful, both for directing the particular

treatment necessary, and for comparing with later examinations. For if we are able to anticipate the character of the deformity to follow in the event of inefficient treatment, we can use our measures to counteract the particular tendency. Another method of recording the amount of paralysis is the spring balance muscle test of Lovett, of Boston, by means of which the power of muscle groups (more particularly than individual muscles) is rather accurately registered by the pull against a spring balance. To quote Lovett: "The method aims at pulling against a fixed position assumed by the patient, rather than attempting to have the patient initiate a movement." By training two persons to carry out these tests, so as to coordinate the pull of the muscle and the registration of the pull on the scales, Lovett was able to make very accurate observations and to note the progress of muscle power.

It is at this second stage of the disease that many of these cases come to our attention. The initial stage of the disease has usually not been given the significance it deserved, and the parents have found that the child is not getting over the weakness of a leg or an arm, and is, perhaps, showing some definite wasting of the limb, often complicated by some joint contraction. The child has recovered from its fever and muscle tenderness, but is still unable to use the limbs normally, and, if made to stand, is perhaps unable to balance itself without holding onto the bed, or if urged to walk, either deliberately falls down, or gets about most awkwardly. Fortunately, at this time we find the case not too far advanced to correct the beginning contraction, to prevent permanent deformity and to institute measures designed to restore muscle power. When we realize that the presence of deformity interferes with the return of muscle power and that function is naturally lessened by such contractions, we can see how important it is to treat these disabilities as early as possible, and, in some instances, even before they occur. It is our duty first of all to determine just what muscles or muscle groups are involved and what contractions are liable to occur. Records will show that the most commonly affected muscles are the gluteals, the quadriceps, the anterior tibial and dorsiflexors at the ankle, and the deltoid. The muscles of the back and the abdomen must not be overlooked. The practical measures at this stage are simple enough, the appliance of some form of brace or cast or other splint so as to keep the foot at a right angle with the leg, to keep the knee straight, and to overcome the tendency to flexion at the hip by not allowing the patient to sit up. If the ab-

dominal muscles are found weak so that the child has difficulty in coming to a rising position unaided, or if the back muscles allow a lateral curvature of the spine when the trunk is erect, the child should be kept recumbent, best accomplished by resting in a plaster shell. In the case of deltoid paralysis, abduction of the arm should be insisted upon by the simple measure of tying a bandage to the wrist and fastening it to the head of the bed. Further examination will show whether it is necessary to maintain, for instance at the ankle, the position of inversion or eversion of the foot to relax a paralyzed invertor or evertor. This is best done by the application of a short plaster of Paris cast. The question of when to let the patient up from bed is a much disputed one, depending upon the severity of the affliction, and the progress of recovery. It is my own practice to keep the child recumbent for a long period, unless the paralysis has no definite relation to weight-bearing, as in paralysis of the upper limb. It is true we have to consider the attitude of the parents who often feel we are not doing much when we insist on long bed treatment, but certainly where we have paralysis of the back or abdominal muscles, recumbency is by far the best position for the patient to assume.

We have tried to emphasize from the foregoing that the prevention of deformity is the primary practical consideration in this convalescent or pre-paralytic stage. The second general measure is best described as the restoration of muscle power or the re-education of the affected muscles. This method of treatment must not be considered apart from the efforts used for the prevention of deformity, but should be practised at the same time. Such a method includes the following therapeutic measures: heliotherapy, hydrotherapy, massage, electricity, and intelligent muscle training. Heliotherapy might be regarded as a general measure, and such it is, but we have learned that in this disease, with its tendency to muscle wasting, the rays of the sun do improve the muscle tone at the same time that they increase the skin nutrition. Hydrotherapy stimulates the circulation by the use of a warm bath to the part, followed by a very few minutes of a cold bath. It also serves another purpose, for if the child can be placed in a sufficiently large tub or pool of water to which has been added salt so as to increase the buoyancy of the water, he can better perform his exercises, now that the element of gravity has been removed, and that friction has been reduced to a minimum. Electricity has not met with much favor from most orthopedic men, and is, in

general, much overrated. Probably no real scientific work has been done along this line. Massage, on the other hand, is a most valuable adjunct—its chief value being in keeping the muscles fit from the time the tenderness has disappeared until such time as they begin to function again. It should be done by a trained masseuse, especially one who knows enough not to overdo. With massage, some form of dry heat is of advantage, best supplied by some type of electric baker, or perhaps a carbon light.

Muscle training has become, of late years, almost a science in itself. It is hard to define, but can be said to consist in training the patient to perform certain motions through the stimulation of impulses from the brain by means of the remaining uninjured nerve centers to the partially paralyzed muscles. Such muscle training or muscle exercise is thus designed to accomplish the return of muscle balance in two ways: by strengthening the affected muscles themselves, and by further developing the muscles' nerve centers in the cord that have not been injured by the poliomyelitis. It is best carried out by a trained assistant who understands the anatomy of the muscular system and who is cognizant of the particular deficiencies in the given cases. The art of muscle training consists in the proper correlation of passive motion, in which the part is brought through the full arc of motion at the joint by the assistant, and the active motion by the patient, who attempts to move the part through the same arc. Of course, before any intelligent muscle training can be started, a thorough examination of the muscular system must be made and recorded. It is necessary to determine whether the muscle in question has any evidence of contraction, whether it can function against gravity, or against the surgeon's resistance, or, finally, whether it can perform its normal work. For instance, let us examine the gastrocnemius muscle, the normal function of which is to plantar flex the foot, and in standing, to raise the heel from the floor. The patient lies on his side on a smooth table with the foot held by the assistant at right angles to the leg. The patient is instructed to push his toes down, and we look for a contraction in the calf. If such occurs, but not enough to plantar flex the foot, we record it as "trace." If a bare plantar flexion takes place with the leg recumbent, we record "poor." If, when the leg is raised to the vertical with the patient prone, the gastrocnemius can overcome gravity, it is called "fair." Again, if the motion can be accomplished against the surgeon's resistance, we make the notation "good,"

while, if the patient can stand and raise his body weight, we record it as "normal." Having then determined just what this particular gastrocnemius is capable of doing, we can outline our muscle exercise. As suggested above, the exercises are best carried out on a smooth leather-covered table on which has been sprinkled some common dusting powder to reduce friction to a minimum. Concentration of effort is best secured by leaving the patient and the assistant alone in the room, for often the whole attention of the child is needed. Fatigue must be very carefully guarded against in each day's exercise, and occasionally a day or two of rest must be allowed if the child shows any tendency to dislike the task set down for him.

Now, in the case of the paralyzed gastrocnemius, for example, let us suppose that the child is unable, when standing, to raise the body onto the toes. He is placed upon the table, lying on the affected side, and the paralyzed limb uncovered. I believe it a very good plan to heat the limb first for a few minutes under the electric baker or carbon light before beginning the special exercises. With the foot assuming a right angle position, the patient is told to concentrate his attention in trying to plantar flex the foot. If he can not move it at all, or can only carry the foot through part of the normal range of motion, the assistant should complete the arc by passive motion, bringing the foot into complete plantar flexion, so that the patient's mental attempt will not be interrupted. When the patient is able later to move the foot through the whole arc, then resistance should be offered by the assistant, graduated from a slight resistance at the beginning to strong resistance in the middle, and back to slight resistance at the end of the movement again. As time goes on the muscle will be able to encounter more and more resistance from the assistant, and, if recovery continues, will be strong enough to raise the heel from the floor in standing. All the muscles of the body can be exercised on this same principle if their normal functions are known. Let me caution here once more against fatigue. It has been shown that too often an overzealous parent or trained aide has done more harm than good by overworking the paralyzed muscle. Judgment must be used, too, in making the exercises a joy rather than a bore, so as to get real cooperation from the child.

We have stated above that muscle training must be carried out in conjunction with the measures to prevent deformity, and we said that braces and casts were used to hold the joints in correct positions. Of

course, at the time of exercises, the apparatus must be removed. In the case of a cast, we plan on making it strong enough to allow of dividing it into a front and back half. This is known as bivalving, and requires straps and buckles to hold the halves secure after replacing them. The neatest plan is to cover the casts with stockinette so as to keep them from crumbling and to keep the cotton or sheet wadding in place.

Now comes the question of when to let the poliomyelitis case walk. It is a hard question to answer. We do not want to delay recovery by putting added work on already weakened muscles, by fatiguing them unnecessarily, and we do not wish the strain of body weight to cause any existing deformity to increase. Probably, then, the best answer is that standing and walking may be allowed when the limit of improvement in bed seems to be approaching, which may be after a few weeks, or, in severe cases, after some months. At such time, further ortopedic apparatus is generally necessary to protect against increasing deformity and to help maintain balance. Various forms of splints must be used, depending upon the particular paralysis. In the case of a tendency to lateral curvature of the spine, there must be worn some type of corset, cast, celluloid or leather jacket. In the case of the cast, it is previously made with the patient in the recumbent position, the deformity being held in correction by the use of bandage traction while the plaster is being applied. The celluloid or leather jacket is made over a well-fitting plaster model made by filling the original cast. In deltoid paralysis, I believe the proper procedure is not to allow the arm to hang at the side, stretching the deltoid and relaxing the joint, but to maintain the arm at right angle abduction in an aeroplane cast or brace, the forearm being held vertical or horizontal, whichever will bring the humeral head into more snug relation with the scapula. In the lower limbs, the knees and ankles must be carefully protected against strain and deformity from body weight. The feet must not be allowed to assume malpositions, and, in the absence of quadriceps paralysis, are best protected by a simple brace consisting of a foot piece, and a single or double upright extending up to just below the knee. The foot piece of the brace, which may be tilted inward or outward to preserve inversion or eversion of the foot, should not be solid at the ankle, but had best allow some play in flexion and extension, so limited that the heelcord will not stretch in gastrocnemius paralysis, and that the dorsiflexors will remain protected when

a tendency to foot-drop exists. Of course, in very mild cases, a properly built shoe with tilting of the heel on the outer or on the inner border will be sufficient, and in some cases the raised or the lowered heel is all that need be used. For quadriceps paralysis, the most practical and yet simple contrivance is the double caliper brace, consisting of uprights extending from the shoe or the foot brace upward to the groin to end in the well known Thomas ring. The knee is held secure by a leather knee cap pressing against the patella. If flexion of the knee is desired for sitting, a drop catch may be added to allow unlocking. For gluteal paralysis, probably no satisfactory brace has been devised, and it is by far best to depend upon crutches, which, after all, serve to protect against strain and deformity in the back and the joints of the lower limbs. Lovett came to the conclusion some years ago that any case of infantile paralysis, however severe, can be made to stand and walk, provided all the deformities are held corrected, and that some power remains in at least one upper limb. He stated that, with the use of crutches, balance can be maintained because the center of gravity would be within the base of the four props if the patient would only lean forward. Walking, in the worst cases, is possible, after a fashion, the patient placing one crutch at a time slowly ahead and then dragging one leg or both, taking care not to allow the limbs to advance beyond the crutches. This he termed quadruped walking. We have proved this in many cases after correcting deformities in patients that had never stood or walked, and it is surprising how readily most children will adapt themselves to progress after they have sensed the idea of balance. It seems to me most gratifying in the treatment of infantile paralysis to get a child to help himself in getting about from one room to another after he has lain about a seemingly helpless cripple, but it can often be done by the simple measures as outlined.

But now that the child is in the ambulatory stage of treatment, let us not forget the continued necessity for muscle training. The constant use of apparatus has a tendency to atrophy, unless massage and exercise are continued. Let us remember, too, that even when apparatus is worn, it is possible for deformity to develop. The braces must be constantly watched to see that they continue to fit accurately, and that they are not outgrown. We have seen instances where a brace or cast designed to prevent equinus, will allow development of the dorsiflexors at the expense of the plantar flexors,

and then we had to deal with a calcaneus or heel drop.

As time goes on in the ambulatory stage, the patient will often gradually discard his braces or crutches. For instance, in quadriceps weakness, the child may soon learn to maintain his balance by fully straightening, or perhaps by slightly hyperextending, his knee as is done in the case of an artificial limb. At such a stage the knee may well be rid of further knee support, thus lessening the amount of apparatus that has to be carried about. It might be added here that a slightly contracted heel cord is rather an advantage than a disadvantage in quadriceps and gluteal weakness, because, when the foot is placed flat upon the ground, the short cord serves to throw the knee backward into position of balance.

Before leaving the discussion of treatment in the convalescent stage, let me emphasize the necessity of guarding against flexion deformity at the hips. Not only is such deformity most disabling if allowed to occur, but occasionally a dislocation of the hip takes place if too much hip flexion is allowed. At these joints we do not have to fear hyperextension deformity, as may occur at the knee or ankles, because the study of the anatomy of the hips reveals the fact that hyperextension is always definitely checked by the Y-ligaments, while flexion may progress indefinitely, requiring later operative treatment if not taken care of early in the disease.

Finally, the third or late phase of poliomyelitis shows a stationary paralysis with deformities, if any, more or less fixed. This is the stage at which most children are brought to the orthopedic surgeon. This period of the disease begins about two years after the acute attack, when the initial improvement has ceased. At this time orthopedic treatment seeks to correct deformity and to improve function, and is therefore for the most part surgical. This field in surgery has been very greatly developed during the past fifteen to twenty years, so that the treatment of paralysis by surgical means has become very popular, with the result that many apparently helpless cripples have been enabled to get about on their feet, and have become, to some extent at least, more useful citizens.

Operative measures, as a general rule, should not be practised on children under seven or eight, especially as regards bone work. So often normal bone growth is interfered with, notably when the epiphyses or epiphyseal lines have been disturbed. In this way, sometimes a surgical correction in infancy will produce a more embarrassing

deformity at adolescence. Likewise, often the cutting of one contracted tendon about a joint does not overcome the contracture of other tissues, and a greater deformity develops.

As just stated, operative treatment is practised for two purposes: to correct deformity and to improve function. The correction of deformity should precede operative means for improvement of function. And we have operative procedures for correction of deformity should precede measures more adapted for the benefit of function. In the first group may be listed stretching and manipulation, subcutaneous tenotomy, fasciotomy and muscle stripping, tendon lengthening and shortening, and osteotomy, while the latter group includes tendon, nerve, and bone transplantation, artificial silk ligaments, partial or total astragalectomy, and joint fusions or arthrodeses.

The first surgical measure to be considered in deformity is not open operation, but the gradual stretching for a flexed or extended limb. This is advised because it gradually corrects all of the contracted tissues rather than one or two at the expense of others. Whether the correction can be accomplished at one sitting depends upon the extent of the deformity. It is better not to stretch too much at one time, because of possible shock and pain and pressure sores. And in the flexed knee with posterior subluxation of the tibia, too vigorous straightening may result in further subluxation. We are much in favor of the slower method of wedging casts for the correction of flexed joints. In the case of a badly flexed knee for instance, under ether, a moderate stretching of the hamstrings is carried out, then, in the position of the greatest correction, a long plaster cast, carefully padded, is applied. In two or three days, about three-quarters of the circumference of the cast is cut across the flexor surface of the joint, so as to allow, during the next few days or weeks, a forcible gradual straightening of the cast and limb, each day's gain being held by wedging of the enlarging gap with a few sections of tongue depressors or the like. Very satisfactory correction of flexed limbs can thus be accomplished with practically no discomfort to the patient.

Tenotomy was probably the first corrective operative measure in orthopedic surgery. Tenotomy of the tendo Achillis dates back to 1838, when the subcutaneous division was first done. Today, tenotomy of any tendon may be done in poliomyelitis for correction of a contracted muscle, following the paralysis of the opposing mus-

cle, but still the tendo Achillis is the one most frequently attacked for the correction of foot-drop. In younger children, the subcutaneous method is more often practised than the open method of tendon lengthening. In the simple tenotomy the sharp tenotome is inserted through the skin along the inner border of the heel cord, the tendon cut obliquely, and the foot brought into proper position. In other cases, where the opposite deformity of calcaneus is feared or where a flail ankle might follow, the lengthening of the tendon is accomplished by the open method, the sheath being split and a double zigzag incision and suture being done. Other tendons sometimes cut are the peronei, and the hamstrings. A cast should always be applied after a tenotomy, to be worn four to six weeks, preferably bivalved to permit of muscle training. Instead of tendon lengthening, sometimes a tendon shortening or reefing is done, as in the case of a calcaneus with a relaxed heel cord. As a rule, however, such a procedure is not very successful, because the once stretched tendon is prone to stretch again.

Fasciotomy with muscle stripping, is used very successfully in two types of deformity—the cavus or hollow foot, and the hip flexion contracture. For the cavus foot, the operation of choice has come to be known as the stripping of the os calcis, devised by Steindler of Iowa City. An incision is made along the inner aspect of the os calcis, exposing the plantar fascia. The fascia is divided crosswise, the small flexor muscles of the foot and the long plantar ligament are stripped off the periosteum of the os calcis, and the operation finished by wrenching the foot, which serves to reduce the deformity. A cast should be worn six to eight weeks. In the operation for hip flexion, Soutter of Boston was the pioneer. In his method, through an incision made along the anterior edge of the tensor fasciae femoris, the fascia between the anterior superior spine of the ilium and the trochanter is first divided, then the muscles and fascia attached to the spine are stripped subperiosteally, to be dropped down toward the anterior inferior spine where they make attachment on forcible correction of the thigh flexion. This operation has been improved by Campbell of Memphis, who detaches not only the anterior superior spine, but also the anterior portion of the crest, which he implants just above the rim of the acetabulum. He also divides the short head of the quadriceps muscle. His results are excellent.

Bone operations for the correction of deformity include principally various osteotomies for extreme conditions. In a bad knock-

knee, a transverse osteotomy of the femur may be indicated. The bone is exposed just above the condyle, fractured by osteotomy and brought into correct alinement. Long standing cases of infantile paralysis, dating from early childhood, will often show an eversion of the lower leg, due to an external growth of the tibia. This objectionable deformity can be corrected by osteotomy of the tibia and fibula and forcible internal rotation. In severer rotary deformity, two osteotomies may be necessary in the tibia. At the ankle, a long-standing varus or valgus or cavus deformity may yield only to a cuneiform or wedge-shaped osteotomy, the direction of the base of the wedge depending upon the correction desired. An incision is made to expose the front part of the body of the astragalus and the astragalocalcaneal joint. A V-shaped section of the neck and head of the astragalus, and perhaps of the calcaneus, is removed for the varus or cavus deformity with the base facing outward or upward, while for the valgus deformity the wedge removed will include some of the cuboid bone, the base of the wedge facing inward. Other corrective bone operations include fusion of the spine for paralytic scoliosis, and astragalectomy for calcaneo-valgus at the ankle, but these are more properly included among the measures for improvement of function.

Only recently another and rather radical bone operation has been used. It is a most painstaking operation, that of bone lengthening for cases of shortening of one limb. The operation is rather complicated for description and involves much accurate apparatus. Briefly, it consists in exposing practically the full length of the femur or tibia, which is divided into two longitudinal halves by a motor saw and each half cut across at the upper or lower end. This permits the sliding of one fragment on the other after each has been secured by a long steel pin drilled transversely through it and attached to overhead apparatus. The wound is closed with the pins protruding through the skin. The lengthening is accomplished slowly, at the rate of about one-sixteenth of an inch each day, so as not to stretch too rapidly the muscle, nerves, and bloodvessels. In this way, as much as two inches in length can be gained.

After deformities are corrected, the operative work for the betterment of function, deals mostly with stabilizing measures. Tendon transplantation which dates back to 1882, is first to be considered. It has not been marked with a great degree of success, though in a few joints of the body better muscle balance has been secured. This is

particularly true in cases of talipes varus and valgus, and occasionally true in quadriiceps paralysis. The technic in transplantation for valgus deformity will give the best description. Here the transplantation aims to replace the paralyzed anterior tibial by a healthy peroneus. It must be remembered as a general rule that any deformity must first be corrected, that the transplanted muscle must be a healthy one, and possess strength equal to the normal power of the one to be replaced. A gliding apparatus must be provided, and a straight line of pull must be established, with the end of the healthy tendon secured to bone rather than to the paralyzed muscle. Most important of all, careful after-treatment with muscle training is to be insisted upon. In the case of transplantation for paralyzed anterior tibial producing a valgus, the following procedure is carried out: A long incision on the outside of the leg and ankle exposes the peroneus longus, which is severed near its insertion, raised from its sheath, carried across the leg within the fascia, to the sheath of the anterior tibial muscle, which has been relieved of its tendon after severing of the latter at its insertion. The peroneus is then carried down the sheath of the anterior tibial and, with some tautness, tied to the denuded internal cuneiform bone, over which the periosteum is sewed. The foot is casted in position of varus. If the technic is carefully carried out, a fairly satisfactory result may be anticipated. Many other transplantations might be mentioned, as that of the common extensor of the foot and great toe into the metatarsals, for claw-foot; one hamstring or sartorius forward into the patella or patellar ligament; the tensor fasciae femoris to the patella, for quadriiceps paralysis, or to the upper femur for a paralyzed gluteus medius; and the erector spinae to the posterior aspect of the femur, for gluteal paralysis. In the upper extremity, a number of transplantations have been done for contractions of the forearm, hand, and fingers.

Nerve transplantation has not been successful enough to discuss here. In bone transplantation I want to mention two outstanding examples. Many of you are familiar with the Albee bone graft for tuberculosis of the spine—the same technic is carried out for paralytic scoliosis. It consists in placing a strip of bone from the anterior aspect of the tibia across several vertebrae by inserting it between the split posterior processes, for the purpose of correcting part of the lateral flexion of the spine. Sometimes the graft of bone is placed along the concave side of the posterior processes.

Probably better than the Albee graft is the Hibbs' fusion of the spine which is accomplished by establishing five lines of fusion throughout some five or seven or nine vertebrae by curetting the interarticular facets on the right and left, and by fracturing the posterior processes at their bases so that each one comes in contact with the one below. The other outstanding example of bone transplantation is the bone block operation for foot-drop, devised by Campbell of Memphis. His plan is to insert bone into a space exposed behind the foot, bounded by the tibia above, the astragalus in front, and the os calcis below. If one-half to three-fourths of an inch is removed from the posterior aspect of the astragalus, a very adequate amount of bone can be transplanted, to block the elevation of the os calcis in foot-drop. Excellent results have been obtained.

The use of silk ligaments for the checking of foot-drop is not as popular as it was some fifteen years ago. The scheme was to enforce the ankle joint by the use of heavy strands of silk extending from the tibia to some bone in the foot, and secured by insertion into drilled holes covered over by sutured periosteum. These ligaments would be later covered over by fibrous tissue. But the operation has fallen into disrepute because often the silk would break, or become infected, or wear through the skin. Now, I believe, the operation is seldom done.

The operation of astragalectomy, worked out by Whitman of New York, has been found very valuable for stabilizing the foot in children between eight and fifteen years of age, where a bad calcaneus deformity has occurred as the result of gastrocnemius paralysis, making the patient walk entirely or nearly entirely on his heel, the front of the foot being drawn up by the contracted dorsiflexors. If properly done, the removal of the astragalus shifts the weight-bearing line to the front of the foot by displacing the tibia and fibula forward, creating the more stable position of valgus with no lateral motion, but preserving motion in plantar flexion.

Finally, let me mention the most satisfactory operative procedures in infantile paralysis. I refer to the various bone-stabilizing operations, especially those designed to correct foot instability. Stabilization of the foot is obtained by fusion of two or more bones. Though this sacrifices, to a certain extent, the flexibility of the foot, better stability is gained because, after all, joint motion is of very little value if it cannot be controlled, as in cases of bad valgus, or dangle foot, etc. Such fusion is most commonly done in the so-called "subastragalar joint"

which refers to the articulation of the astragalus with the os calcis below and the scaphoid in front. It is at this joint that uncontrolled motion occurs in bad paralyses of the tibial or peroneal muscles. Muscle transplantation has not generally been found adequate in this connection, while a subastragalar arthrodesis, if properly done, is of immense value. Davis, of Philadelphia, did the pioneer work in this line. In his original operation he made two incisions, one on the outer aspect to expose the astragalo-calcaneal joint, so that he could denude the inferior surface of the astragalus and the superior surface of the os calcis, and one on the inner aspect of the ankle and foot so that he could remove the cartilage from the sustentaculum tali of the os calcis, from the head of the astragalus and from the articular surface of the scaphoid. He managed to get some backward displacement of the foot by the removal of the astragalo-scapoid joint and by freeing the lateral ligaments from the malleoli. This operation has been improved by Hoke of Atlanta, who added to the subastragalar arthrodesis by removing the head of the astragalus and replacing a part of it after a thorough backward displacement of the foot and correction of the alignment and rotation of the os calcis in relation to the leg, of course depending upon the particular deformity and paralysis present. Other operators have seen fit to improve upon these procedures. Arthrodesis may also be done in the mid-tarsal joints for dropping of the forefoot, where the subastragalar joint is not affected. In other parts of the body, stabilization has been accomplished by arthrodesis of the larger joints, particularly the shoulder, wrist and knee, when the relaxation of those joints has been otherwise uncontrollable.

I have tried to outline the treatment of infantile paralysis in its three stages. It is really too large a subject to cover thoroughly in the time I have taken, but I have attempted to place before you the high spots in the orthopedic plan of procedure for the various conditions as they presented. Let me emphasize, finally, that, in the first and second phases of the disease, much of the deformity can be prevented by a proper appreciation of the particular paralysis present. Function can be, in many cases, for a great part restored if we are careful to use gentle means of definite muscle exercise, and to postpone for a sufficient time the temptation to get the child onto his feet. Proper intelligent bracing must be insisted upon. In the final stage, the deformity must be properly analyzed before operative interference is undertaken and it is to be

done then only if we are convinced that improvement by other means has reached its maximum. In the operative work, the bone stabilization procedures have probably proved of most value.

DISCUSSION

DR. C. F. MILLIGAN, Clifton, N. M.: I want to congratulate Dr. Packard on his very excellent paper and discuss a few points in connection with it. It is, in my opinion, only through propaganda and education that we can control this disease. I wish that this paper might be published in an early edition of the journal (*Southwestern Medicine*) and that it might be read by all the doctors in the southwest. There are some conditions here which we should combat. There are some physicians throughout the state who deny that we have poliomyelitis. They have various diagnoses for the cases they see and, in this way, they make it very hard for other physicians to control their cases and very difficult for the public health department to isolate and quarantine them. Then, too, some of the business men in the smaller towns are opposed to quarantine on account of poliomyelitis, because it affects their business, especially in sections where there are tourists. It hurts them if we publish the fact we have an epidemic of poliomyelitis or infantile paralysis and try to keep the children from going to the movies, to the schools, churches, etc. It keeps the tourists away and for this reason they are opposed to it and try to find some doctor who will say that such disease does not exist. This puts the general profession in disrepute. They also claim that the particular child who may be ill was not at any public gathering, and deny that there is danger through contagion. Also, in this connection, we have a good deal of trouble with chiropractors. They say the medical profession cannot cure this disease, they have no protective measures, and if a child has infantile paralysis we have very little treatment of benefit. So a lot of people think that if a child is once paralyzed, it is hopelessly paralyzed. Then along comes the chiropractor and says, "I can take care of this case," and they let the chiropractor have the child.

This paper discusses a subject which is most important, not only to the man who is treating diseases of children, but to all of us, and I hope you will help to spread this propaganda in your district. We must control this disease as much as possible and must institute proper treatment if we do have these cases.

DR. D. L. BURTON, Albuquerque, N. M.: I believe one thing which should be done in the early treatment of these cases is very important—and that is keeping the patient quiet. Oftentimes parents do not want the child quarantined and try in every way to avoid this, but if we can apply simple dressings, keep the patient in bed and absolutely quiet and comfortable, a complete recovery may occur.

DR. R. G. PACKARD (closing): Dr. Burton is right. Children are extremely benefited by quiet and rest. Children are very often sick and the parents want them to exercise—to bend their knees and ankles. It is our duty to prevent such motion—to keep the knees perfectly straight, and not to exercise the tender muscles. The tendency is to exercise them, but it is the wrong thing to do and the condition is often made much worse by massage or exercise. The muscles affected by this disease are always the tender ones. If you will only keep the child in bed, and restrain your own temptation to test out and exercise these muscles until the period of tenderness is over, you will get a much better result.

POLIOMYELITIS: ITS DIAGNOSIS AND MEDICAL TREATMENT

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An intelligent discussion of any disease will be promoted by a short resume of its pathology. This is particularly true of poliomyelitis, the pathology of which, in a striking manner, suggests to us the clinical symptoms encountered and also unfolds to us, to some extent, a rational form of treatment. The disease, when it localizes in the central nervous system, at first attacks the delicate and highly vascular pia mater. The invasion continues by way of the lymph spaces of the vessel sheaths as they penetrate the cord. Hyperemia, perivascular infiltration, edema, and hemorrhage take place. We have, therefore, a lepto-meningitis. When the virus attacks the central nervous tissue proper, we again see the same reactions, hyperemia, perivascular infiltration, edema and hemorrhage. Depending upon the severity of the process, this is followed by partial or total destruction of the nerve cells, resulting in various degrees of permanent paralysis. Motor disturbances occur whenever those cells and fibers which have to do with motion are in any way affected by pathological processes. Pressure and stretching of the cells and fibers will impede their function. Depending upon the kind and degree of damage which has occurred, paresis or paralysis will follow. If the motor neurones are destroyed, motion ceases. The process of inflammation is not confined to the gray matter, but very frequently involves also the white matter and the spinal ganglia. The term poliomyelitis, *polio* meaning gray, is therefore a misnomer.

No matter whether we are dealing with a poliomyelitic lesion of the cord, medulla, pons or brain, the reaction in the tissues is always the same. With the triology of hyperemia, edema and hemorrhage constantly in mind, we will have little difficulty in understanding the many and varied clinical pictures which this disease presents. There is an increase in the amount of spinal fluid. It very soon becomes slightly opalescent; the cell count becomes abnormal in that the number of cells may range from thirty to forty up to two thousand. Early, and only transiently, they are the polymorphonuclear type, very soon being replaced by mononuclear cells. Chemical examination of the fluid will show the presence of globulin, a normal sugar content (fifty to seventy-five

milligrams per hundred cubic centimeters), and a normal chloride content (seven hundred to seven hundred and fifty milligrams per hundred cubic centimeters). Bacteriological examinations of smears and culture are negative.

Lesions are found in other organs also. These were not considered important as long as we regarded the presence of paralysis as requisite to the diagnosis of poliomyelitis. Today we recognize poliomyelitis as an acute, general infection in which serious involvement of the nervous system may or may not occur. In cases dying during the acute stage, there is always found an enlargement of the lymphoid tissues, especially of the mesenteric glands and Peyer's patches. Glands in any part of the body, as well as the spleen and tonsils, may show involvement. The presence of the virus has been demonstrated in the central nervous system, mesenteric and other glands, the tonsil and nasal mucosa. In 1909, Landsteiner and Popper produced poliomyelitis in the monkey by intraperitoneal injection of a suspension of the central nervous system from a human case. A few months later Flexner and Lewis reported their success in transferring the disease from monkey to monkey. They injected a suspension of poliomyelitic tissue into the brain. The etiologic factor in infantile paralysis is a living organism which multiplies in the tissues but, as yet, has not been definitely isolated. It passes through a Berkefeld filter. The disease can be produced by bringing the virus in contact with the nasal mucous membrane by means of intranasal tampons. It is believed that the virus passes directly by means of the lymphatics through the cribriform plate to the pia-arachnoid membranes. Animals once having been infected cannot successfully be re-inoculated. The blood serum of monkeys and of human beings who have recovered from the disease, contains substances which will, to some extent, protect others against the disease. The protective bodies appear in the blood on about the sixth day and can be demonstrated for twenty years or more afterward. The virus of poliomyelitis is very susceptible to drying, sunlight, hydrogen peroxide, chlorine and bichloride of mercury, but resistant to phenol. The thermal death point is about 120 degrees. This data gives us important information regarding methods of disinfection. F. R. M. Walshe very correctly states that a practical conception of the malady can be given in three clinically and pathologically distinct stages of evolution: (1) The stage of general infection. This is characterized by fever,

malaise, diarrhea or constipation, irritability and behavior customary to the febrile child. (2) Stage of invasion of the sub-arachnoid space. This varies in intensity and therefore the symptoms vary. In this stage we find fever, headache, pain in the back and limbs, rigidity of spine, muscular twitching, tremor, vomiting and changes in behavior. During this stage the spinal fluid is increased. It soon assumes a slightly opalescent or groundglass appearance. The cell count will vary from thirty to forty up to one or two thousand. Early, and only transiently, polymorphonuclear cells predominate, very soon however giving place to a lymphocytosis. (3) Stage of invasion of the central nervous system proper. When the virus establishes itself in the nervous system, paralytic phenomena become established. The reflex arc is broken, resulting in absence of reflexes. The time element between the second and third stage is frequently short. It may be only a matter of hours. This should impress upon us the importance of instituting treatment early and promptly. As long as the paralysis is principally due to hyperemia and edema full restitution is still possible. It is only when the central nervous system becomes itself invaded and destruction takes place, that paralysis occurs, and it may be well here to reiterate that, in many instances in which infection has taken place in the human being, this stage does not occur, and therefore in every epidemic we have many individuals who are victims of the disease but recover without any signs of paralysis. The degree and permanence of paralysis in a given case, will depend upon the extent and thoroughness of the actual destruction occurring in the central nervous system.

Various observers and authors have given us many different clinical and pathological classifications of this disease. From a practical and clinical standpoint, I believe we can group the cases under five definite headings.

- (1) The arrested or abortive type.
- (2) The spinal myelitic type (flaccid paralysis).
- (3) Acute bulbar type (cranial nerve paralysis).
- (4) Encephalitic type (spastic hemiplegias, ataxia, etc.).
- (5) Meningitic type (with or without paralysis).

1. **The arrested type.** This type, except during an epidemic, is probably almost invariably overlooked. It is an extremely important type because, in some epidemics, it has been estimated that this arrested form

occurred more frequently than the paralytic form. Transmission of the disease may at times be largely due to contact of these undiagnosed, non-paralytic patients with the remaining population. During an epidemic it is, therefore, almost imperative that we ferret out and recognize these cases in order to diminish the material upon which the disease feeds. The symptoms of onset of poliomyelitis are the symptoms of the arrested form of the disease. We will mention these here now and avoid repetition. The diagnosis will be strongly suggested by (1) headache; (2) rigidity of neck and spine. The rigidity of neck is usually in the antero-posterior direction, lateral movements are possible unless there is also involvement of the sternomastoid muscle. (3) Rapid pulse; (4) rapid respiration from no apparent cause; (5) increase in spinal fluid with slight opalescence or ground-glass appearance and a cell count usually varying from ten to three or four hundred. Globulin is increased, sugar and chlorides are normal. (6) Rise in temperature which may be of short duration and varies from 100 to 105 degrees, generally declines by crisis when the paralytic symptoms come on; (7) hyperesthesia and change in disposition, the patient may be languid or even stuporous; he may exhibit restlessness and anxiety and usually manifests a decided disinclination to be handled or moved. Hyperesthesia is an extremely frequent symptom and, at times, almost intolerable in its intensity. It is often accompanied by myalgic pain in the back, extremities or abdomen. (8) Tremor; muscular twitchings, ataxia and incoordination may be evident at a glance or, in other instances, detected by careful examination. (9) Gastrointestinal symptoms, such as vomiting, diarrhea, or constipation, usually accompany the onset. In some epidemics diarrhea seems to have predominated; in others, constipation. (10) The reflexes are never absent, but usually exaggerated during the first two stages of the disease. (11) Sweating and the occurrence of various skin eruptions might also be mentioned. Herpes is rare.

Suspicion of poliomyelitis, I would say, will rest upon the presence of headache, rigidity of neck and spine, very rapid pulse and rapid respiration, hyperesthesia and fever. The examination of the spinal fluid will convert our suspicion into a certainty.

2. Spinal myelitic type. This is the type characterized by flaccid motor paralysis of the muscles supplied by the spinal nerves. Practically all paralytic cases develop their paralysis on the third day, or thereafter, of the disease; with the onset of the paraly-

sis, the general symptoms subside or decrease in severity. The hyperesthesia of the affected parts and the pain and tenderness of the spine, are the exception to this general rule. The legs are involved more frequently than the arms. All possible combinations of paralysis of arms, legs and torso occur. With the onset of paralytic phenomena in an extremity, the reflexes become abolished. The reflex arc has been broken, due to invasion of the central nervous system by the disease. If we have, for instance, a paralysis limited to the right lower limb, the patellar reflex in that limb will be absent. The same reflex in the left limb will be normal or, in all probability, exaggerated. When paralysis has set in, it may progress for several days, then recession is the rule. Progress of paralysis after the patient has become afebrile is rarely seen. The extent of the paralysis at the onset does not allow us to come to any conclusion or make any prediction as to the amount of permanent damage done to the central nervous system. In some instances, complete recovery occurs; in others, only one or more muscle groups remain permanently ineffective; in others still, there is little or no regression of the original paralysis. Paralysis of the muscles of the torso are at first frequently overlooked; they are generally more persistent than those of the extremities. Obstinate constipation may be due to a paresis of the involuntary muscles of the bowel, together with a paralysis of the abdominal muscles. When the diaphragm becomes involved, the upper abdomen recedes during inspiration and bulges during expiration. Fixation of the chest denotes paralysis of the muscles of respiration; abdominal type of respiration is the natural consequence. We must mention here, also, the acute ascending, or Landry's, type of paralysis, which sets in with an involvement of one or more extremities and progresses upward, sometimes slowly, more often rapidly, finally involving the medulla, as evidenced by a paralysis of deglutition, and ending in death when it reaches the respiratory center. This is a very serious form of the disease; recovery may take place but the outcome is frequently fatal.

3. Bulbar type. In this type, as the name implies, there is paralysis of the muscles supplied by the nerves which take their origin in the bulb or medulla of the cord. In some epidemics, or in some stages of certain epidemics, this type has occurred frequently. In the Los Angeles epidemic, a large number of the cases fell under this heading. The facial nerve is most frequently affected, either alone or in conjunction with

other cranial nerves. A unilateral facial paralysis may be the only manifestation of the disease. Paralysis of the muscles of deglutition and of the motor muscles of the eye, is common. Dysphagia, with salivation and regurgitation of food through the nares, has many times led to a diagnosis of diphtheria. The reflexes in the bulbar type are exaggerated, not absent. The mortality rate in this type is high, due to involvement of the respiratory center in the medulla. It may be well to state here that a fatal outcome in poliomyelitis of whatever type is usually due to respiratory paralysis. Complete functional recovery in those cases which survive the illness, is much more common in the bulbar type than in the spinal form of the disease.

4. Encephalitic type. During every large epidemic some cases of this type are reported. At other times the diagnosis would not and probably could not be made. These cases are represented by spastic paralysis, spastic hemiplegias, athetosis, ataxia and occasionally mental defects. I mention this type merely to call attention to the possibility of a spastic form of the disease with contractures and relatively little atrophy.

5. Meningitic type. This is not a very common form, but it does occur frequently enough to be a diagnostic problem. The symptoms are those of a severe meningitis, frequently with convulsions. A paralysis may set in during the course of the disease and help clear up the diagnosis. A careful spinal fluid examination, only, will enable us to differentiate it from the various other forms of meningitis.

DIFFERENTIAL DIAGNOSIS

We must continually bear in mind that the disease may present an extraordinary number of clinical pictures closely resembling other infections. The disease is undoubtedly on the increase, and we may expect periodic recurrences of epidemics. Only by thinking of the possibility of poliomyelitis, whenever we encounter a patient with symptoms suggestive of involvement of the central nervous system, will we save ourselves the humiliation of overlooking this disease when it occurs sporadically or early in an epidemic.

Fully ninety-five per cent of poliomyelitis occurs in children under sixteen years of age. I will, therefore, consider only those conditions which we are called upon to differentiate during this early period of life. In the pre-paralytic stage we need to differentiate it from almost every acute infectious disease. To attempt to do so before a body of medical men would be extremely tiresome and would savor of pedagogy.

Where I deem it important I will state a few points in differential diagnosis, and, in other instances will merely mention the disease.

(1) Epidemic and suppurative meningitis. In these conditions the nuchal rigidity is often more marked and more apt to be present on attempting both lateral and anteroposterior movements of the head. Kernig's sign is more frequently present in both legs. The mentality is usually more clouded and the stupor more profound and persistent. The temperature does not drop by crisis. The spinal fluid is more often turbid, the globulin is markedly increased, a persistent polynuclear cell count is the rule; sugar and chlorides are diminished and organisms can usually be demonstrated in the fluid.

(2) Tuberculous meningitis. The onset, as a rule, is gradual; however, remember that here again we have a disease which varies greatly in its early manifestations. Apathy, developing into a gradually deepening coma, in which there are no remissions, is nearly always present. In poliomyelitis the stupor, when present, is rarely so deep that the patient cannot be aroused and be made to answer questions. In tuberculous meningitis the temperature, which at first may be low, persists and usually increases as the disease progresses. An x-ray picture of the chest may disclose a miliary process in the lungs. The tuberculin test, if we use one-tenth to one milligram intra-cutaneously, will be positive. Do not be fooled by the statement in some textbooks that malnutrition is a diagnostic point in these cases. On the contrary, we see tuberculous meningitis very frequently in children whose state of nutrition is decidedly good. The spinal fluid is slightly opalescent and, on standing, a fibrin pellicle web forms. The globulin test is positive, but sugar and chlorides are apt to be low. A thorough search in the centrifuged fluid, after the web has formed, will often reveal the tubercle bacillus.

(3) Epidemic encephalitis: the differential diagnosis may be impossible. These cases are more apt to occur in the early spring after the acute respiratory infections have been prevalent. Infantile paralysis is more frequent during the months of summer and early fall. The spinal fluid is not diagnostic. Textbooks will tell you how to make the diagnosis; all I can say is that perhaps the course of the disease will enable you to come to a conclusion and perhaps even then there will be room for doubt.

(4) Syphilitic meningitis. To aid us we must look for other signs of syphilis. The

Wassermann reaction will nearly always be positive.

(5) **Luetic pseudo-paralysis.** This may affect both upper and lower limbs and, as there is an apparent flaccid paralysis, the condition may be mistaken for poliomyelitis. It nearly always occurs in young infants. It is due to a luetic epiphysitis. There is usually a cylindrical swelling accompanied by pain and signs of inflammation at the epiphysial junction. Look for other signs of lues and, if necessary, the x-ray and Wassermann test will always enable an exact diagnosis.

(6) **Pseudo-paralysis of scurvy.** Scurvy is still with us. We see several cases every year. This condition has frequently been mistaken for infantile paralysis, due to the disability produced by the hemorrhages. The slow onset, the spongy, swollen, easily bleeding gums, the presence of ecchymoses in the skin, the painful swelling in the limbs, together with the presence of blood cells in the urine, and a characteristic x-ray picture, should save us from this error.

(7) **Pseudo-paralysis of rickets.** A rachitic myopathy occurs which may simulate paresis. Over-accentuated reflexes, the presence of other signs of rickets, and a diagnostic x-ray picture, will make the diagnosis.

(8) **Diphtheria.** A severe angina or, more frequently, a bulbar type of paralysis may temporarily lead to this erroneous diagnosis. This was true in three of the first cases which I saw during the Los Angeles epidemic. These patients had difficulty in swallowing, with some regurgitation of food through the nose. In diphtheria the paralysis comes on much later in the disease, there is usually palatal, but not pharyngeal, paralysis. Cardiac symptoms are common, and, if in doubt, a spinal fluid examination will be decisive.

(9) **Rheumatism.** This is a rarity during the first two years of life. There is often a history of previous attacks, paralysis not present, the joints are tender and swollen, the affected parts are hot; in poliomyelitis the paralyzed limb is cool and often cyanotic. During the Massachusetts epidemic of last year, three cases underwent abdominal section for a diagnosis of appendicitis. The appendix was found to be normal, but in each instance the mesenteric glands were markedly enlarged.

TREATMENT

The mortality rate in poliomyelitis has varied in different epidemics from ten to twenty-five per cent. As we learn to recognize the arrested type of the disease, these mortality figures will naturally drop to a

much lower percentage. In Los Angeles, one hundred and forty-one cases were reported, with a fatal outcome in thirty-four. Nine cases received convalescent serum and seven Rosenow serum. In the New York epidemic, comprising over nine thousand cases, ninety-seven per cent occurred in children under sixteen years of age and the greatest incidence took place in children below the age of seven.

General Treatment.

(1) Isolation for twenty-one days.

(2) Absolute rest in bed. Several observers maintain that the mortality rate and extent of paralysis can be definitely increased by exertion on the part of the patient after the onset of the disease. Bed pans should be used, urinary retention should be looked for and relieved. The patient should be handled carefully and gently and should not be molested by unnecessary procedures or examinations.

(3) Proper fluid intake must be inaugurated. Children many times do not ask for water and, unless we specify definite intervals for fluid intake and a definite amount to be taken in twelve or twenty-four hours, dehydration and acidosis will complicate the disease. Where there is stupor or coma, the Murphy drip or, better still, periodic retention enemas of glucose solution are indicated. We can also, especially in the bulbar type, resort to tube feeding or we can inaugurate a Murphy drip for both fluid and food by introducing a permanent catheter through the nose, extending six to eight inches into the esophagus. If we employ this method it will be well to fill the nose with some oily substance and also to remove the tube when not in use.

(4) Elimination is of the utmost importance. Experimentally it has not been possible to produce the disease by feeding the virus to monkeys unless peristalsis was stopped by the giving of opium. Constipation is often very troublesome and must be treated promptly by the use of enemas, flushings and cathartics.

(5) Do not force the child to assume painful position. Assist him, by using pillows or pads, to facilitate his lying in the position which he prefers to assume. If necessary, use a cradle to keep the bed-clothing off the patient.

(6) Hot tubs or hot packs may be necessary for the pain and, in extreme cases, we may need to resort to codeine or morphine to quiet the patient.

(7) No known drugs have the power to influence this disease. The use of hexamethylenamine was in vogue for many years but has now been discarded.

Special Treatment.

(1) Lumbar puncture. The purpose of this procedure is threefold:

To obtain enough fluid for chemical and cytological study; to aid in the relief of pain and headache; to serve as a possible therapeutic measure. Abstraction of the fluid, which is always increased above the normal, serves to remove pressure and thereby may possibly influence osmosis to the extent of relieving some of the hyperemia and edema which are constantly present. The part which frequent early lumbar punctures may play in preventing the occurrence of paralysis or relieving it, is still a disputed question. There is good reason to believe that it has therapeutic value and therefore should be done early and, if necessary, repeated. In this connection, a report by T. Cook Smith, and Acock and Amos, of two cases of bulbar poliomyelitis with threatened death due to respiratory paralysis, is interesting. Weed and Hughson have shown that the intravenous injection of hypertonic solutions causes a prolonged and profound fall in the pressure of the cerebrospinal fluid, preceded usually by a sharp rise. These investigators had noted also an actual shrinkage in the size of the brain and spinal cord following the intravenous injections, an observation which had suggested to them that such treatment might cause an aspiration of materials from the subarachnoid space into the perivascular lymph spaces of the nervous tissue. Furthermore, pathologists had found that in poliomyelitis a marked inflammatory edema surrounds those areas of the brain and cord which are the chief seat of the injury. It seemed reasonable to suppose that the increased pressure on the nervous tissues, resulting from the development of the inflammatory processes in a closed space, was in a large part the cause of the paralyses which are present in the acute stage of the disease, but which ultimately disappear. If, at the critical moment of the disease, the pressure resulting from the inflammation could be diminished, the acute situation might successfully be passed and the life of the patient be saved. They, accordingly, in these two patients who gave definite evidence of being in a dying condition, injected forty cubic centimeters of a thirty per cent sodium chloride solution into the right femoral vein. Both children recovered.

(2) Rosenow's Serum. Rosenow regards a pleomorphic streptococcus as the specific organism of infantile paralysis. At the present time neither he nor any other investigator has furnished us with sufficient evidence to establish this as a fact. His

serum is produced by injecting horses with increasing doses of the streptococcus: unless we are willing to accept the organism which he describes as the specific factor in the disease we cannot very well accept his serum as a specific serum. Rosenow has done some very splendid work and, in January, 1927, published an excellent article giving his views on the use of his serum. A good number of cases were treated and apparently successfully. The same remarks which I shall make in my comment on the use of convalescent serum can be applied to the use of his serum. At present the use of convalescent serum seems to me to be more logical and to offer more hope of success provided we can devise means of obtaining it in sufficient quantity for use in an epidemic.

(3) Convalescent Serum. Aycock, W. Lloyd and Kagan, in an article published in the *Journal of Immunology* in August, 1927, have the following remarks to make.

"Experimental immunization in poliomyelitis is of interest in relation to two important aspects of the disease, specific prevention or treatment, and epidemiology. The disease is nearly always accompanied by the development of a lasting immunity. Efforts to advance serum treatment have been made along two lines: to increase the penetration of serum into the central nervous system, and to produce a hyperimmune serum. In connection with the latter, many attempts at artificial immunization have been made. Evidence from many laboratories has shown that killed virus has no immunizing power. Strains of the virus of poliomyelitis have been observed to vary in strength. However, efforts to cause such alterations in virulence artificially have been unsuccessful. That attenuation might be accomplished is suggested by the occasional prolongation of the incubation period after subjecting virus to the action of convalescent serum, filtration, or treatment with various chemical agents. On account of the analogies between the virus of poliomyelitis and that of rabies, attenuation of the virus of poliomyelitis by drying has eagerly been sought. With the virus of poliomyelitis the lack of a variety of susceptible species has not permitted the use of the undoubtedly advantageous fixed virus. The authors vaccinated monkeys with spinal cords of active cases of the experimental disease dried over caustic potash. About twenty-five per cent of animals vaccinated with attenuated virus resisted subsequent intracerebral inoculation. Infection resulted in twenty-five per cent of the animals treated. Phenolized virus and those treat-

ed with glycerin dilutions, possessed little less infectivity than active virus when injected subcutaneously. A large number of intracutaneous injections of active virus does not produce infection. However, if this is repeated for a considerable time, monkeys are protected from intracerebral inoculation or the incubation period is prolonged. Scarification with virus produced no local reaction, did not cause infection and did not protect against intracerebral inoculation. Blood serum of monkeys vaccinated by the intracutaneous method neutralizes the virus of poliomyelitis."

Human convalescent serum in dilution of one to sixteen has protected monkeys against the experimental disease. It is interesting to note that it has never been possible to produce the disease in animals by the injection of spinal fluid from an acute case of poliomyelitis. What I will have to say regarding the application of convalescent serum has come to me through a personal communication by a member of the Harvard Polio Commission whose report on the epidemic of last year has not as yet been published. The technic elaborated and followed by them during the Massachusetts epidemic will be given here.

The serum was obtained from any available case of infantile paralysis of any type, including the arrested type. The immunologic bodies persist in the blood of patients for many, many years. The Harvard Commission used the serum from one patient who was affected forty years ago. His serum was tested by animal experiment and found to have retained its curative properties. They prefer to use the serum from patients in whom the termination of the disease dates back six weeks to five years. There was not enough serum available for use in all cases, therefore they decided to confine treatment to non-paralytic cases only. The earlier in the disease the serum is given, the better the result. A spinal puncture is performed and the fluid drained off. Fifteen cubic centimeters of the serum is then injected intrathecally and twenty cubic centimeters intravenously. The intraspinal injection is frequently followed by signs of increased meningeal irritation, stiffness of neck, Kernig, etc., and on the following day the spinal fluid shows an increase in the cell count. Twenty-four hours later the injections are repeated. After this, only the toxic cases received more serum. They probably would have given more serum to those cases which still showed febrile reactions after this period if serum had been available in sufficient quantities. They never made use of the intramuscular

or intra-peritoneal route in administering serum. The late Dr. Fleishner, of San Francisco, gave serum intramuscularly. Ninety per cent of the cases receiving serum on the first day escaped without paralysis, and only about one-third of the total cases were followed by paralytic phenomena. The use of convalescent immune serum is a definitely logical therapeutic measure and should be employed in every case of poliomyelitis until we have proved its efficiency or its lack of curative power. It undoubtedly has curative value, but its application is naturally impeded by the difficulty of obtaining enough human serum to treat both pre-paralytic and paralytic cases during an epidemic. Convalescent serum has now been used in a small way for the past ten or twelve years.

COMMENT

There are several points to be considered before we arrive at a definite conclusion as to the value of serum treatment in this disease which shows such great variations in symptomatology and incidence of paralysis.

1. An exact dosage of the serum has not been established.

2. We have no method or syndrome of symptoms before paralysis sets in which will enable us to predict whether paralysis will or will not occur.

3. We also have no way of determining after paralysis has set in how much regression the individual patient will show even if not treated.

4. Due to the greater prevalence of poliomyelitis and the many contributions on the subject, especially those calling attention to the prevalence in every epidemic of cases not developing paralysis, the diagnosis is now much more frequently made in the pre-paralytic stage. Years ago a diagnosis of infantile paralysis without evidence of motor neuron destruction would have been ridiculed.

With all the effort which is at the present time being brought to bear on the study of the disease, it seems to me possible that some method of immunization may be discovered, even though the specific organism has not been isolated.

ORTHOPEDIC AFTER-CARE OF INFANTILE PARALYSIS

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(Read before the Arizona State Medical Association at its thirty-seventh annual meeting, in Tucson, Ariz., April 19-20, 1928).

A discussion of the treatment of infantile paralysis may be divided into three stages—the acute, convalescent and chronic. The chronic period is subdivided into an operative and a non-operative phase.

ACUTE STAGE

The acute stage is characterized by tenderness over the involved muscle groups. The extent of paralysis is more apparent than real, because of the pain associated with motion. The layman feels a positive impulse to begin exercise and massage during this period, and it will tax the ingenuity of the medical supervisor to procure complete rest during the interval. Mechanical stimulation added to irritated nerve endings, does not benefit an inflammatory process of the spinal cord and its coverings; in fact, it may permanently limit recovery.

Heat, in the form of hot salt baths, is beneficial and pleasing to the patient. This may be accomplished by lifting the afflicted person into a small bathtub or lowering the individual into the bath in a sheet. The temperature of the water should be equivalent to body heat, and may be gradually increased up to 100 to 105 degrees, depending upon the vigor of the patient. The time of immersion must be regulated according to the particular case. It is well to begin with five minutes and gradually increase the time to eighteen or twenty-two minutes daily.

Deformities develop even in the acute stage and one must be on guard to prevent them. Loss of contractibility of paralyzed muscles causes contractures of the opposing muscle groups. Deformities are chiefly due to the following causes:

(1) Foot drop, because of inadequate splinting, or pressure from bed clothes.

(2) Flexion of the knees, resulting from pillows under the knees, or inadequate splinting of the extremities in extension.

(3) Flexion contractures of the hips occur because the patient is allowed to lie in a semi-reclining position upon a bed which is not firm, with support under the knees.

(4) Adduction contracture of the shoulder is caused by failure to splint the arm in abduction and in internal or external rotation, depending upon the muscle groups involved.

(5) Scoliosis, or lateral curvature of the spine is due to an inadequate period of recumbency on a Bradford frame or in a shell on a firm bed, and lack of a properly fitted

corset when the upright position is resumed.

The character of the splints used in this phase of the disease is not essential. Bivalved plaster-of-Paris casts, plaster beds, Bradford frames or wire splints are of equal merit, if properly used.

Instances may be encountered where the tenderness is so acute that the patient is comfortable only with the extremities in a position of deformity. Fortunately, such occasions are not common. As a rule, the pain will subside sufficiently during the first week or ten days to allow splinting. Fixed deformities will not occur during this time.

CONVALESCENT STAGE

With the disappearance of tenderness one may take stock of the individual case and make a careful examination to determine the extent of the paralysis. This examination is of the utmost importance, and should be undertaken in a systematic manner. It is well to begin with the muscles of the feet and go over the entire system. A hot saline bath is often an aid in this examination. The patient will contract the weakened muscles with greater ease. An accurate record should be made at this time; a chart upon which are listed the muscles or muscle groups of each extremity, with their particular movements, will suffice.

In patients who are able to walk, the type of gait is a source of valuable information. Paralysis of the gluteus medius produces a characteristic limp. This muscle acts as an abductor of the leg, and, during weight-bearing, elevates the opposite side of the pelvis. When the patient bears weight on the affected limb, the pelvis sags toward the same side in an effort to balance, giving the impression of a short leg.

When the hamstrings are strong and the quadriceps paralyzed, the patient may walk with the knee in hyperextension. The patient will find it necessary to externally rotate the thigh or support the knee with the hand when both flexors and extensors of the leg are inactive.

In case of a foot drop, the leg is lifted high to allow the foot to clear the floor. A gastrocnemius paralysis allows the heel to strike the floor first, eliminating the spring from the step. This causes shuffling of the foot.

REST

The patient should be kept absolutely recumbent upon a firm bed during the acute stage. A soft mattress and sagging bed are not permissible because of the danger of hip contractures and lateral curvatures of the spine. If the lower extremities are involved, the feet should be protected from the weight of bed clothes. Application of splints is not always advisable in the acute stage,

because of the added discomfort. An early attempt should be made to support the feet in case of flexor paralysis and to hold the arm in abduction in deltoid weakness.

The length of time that the patient is to remain in bed is an important phase of this problem. It is safe to say that the error is always on the side of early activity. The extent of the paralysis is a deciding factor. It may be safely stated that cases of severe double lower extremity paralysis should not be ambulatory for at least one year from the onset of the disease. The individuals may, of course, sit up in rolling chairs and be taken about after the first three or four months, but should under no conditions be allowed on their feet.

Paralysis of the abdominal and trunk muscles requires a longer period of recumbency. When the paralysis has been extensive there is no dependable apparatus which will give support to the muscles of the torso in the upright position.

Overstretching and fatigue of weakened muscles must not occur. Many weeks may be required to recover from a few hours of over-indulgence in muscular exercise.

PHYSICAL THERAPY

Massage. The chief benefit from massage lies in the stimulation of the circulation. Mechanical emptying of engorged lymphatic spaces, with acceleration of the blood flow to and from the heart, will improve the nutrition of the tissues. To be effective, massage must be carefully carried out with a distinct objective in view. Too vigorous or rough manipulation is not to be permitted.

Heat. Muscles respond more readily to exercise when the local temperature is increased. The character of the heat is immaterial. A greater amount of dry heat can be tolerated, consequently its use is more prevalent.

Electricity. There is great difference of opinion in respect to the use of electricity. When it is impossible to obtain contractions by other means, the faradic current is useful. New paths for efferent impulses around damaged nerve centers may be developed by the application of the electrodes over motor points. Much of the unpleasantness of the faradic current has been eliminated by the Bristow coil.

Muscle Training. Muscle training has two distinct objectives: First, the development of new paths over which motor impulses may travel from the brain to the muscle end-plates, circumventing damaged nerve tissue; and, second, the development of weakened muscle fibers to a state of functional usefulness. It is well to move the ex-

trinity passively through the arc of movement of the paralyzed muscle before an attempt is made to obtain a contraction. If the muscle does not have the power to carry the extremity through the full range of motion of the joint, it should be assisted. As muscle strength increases, the exercises are carried out against gravity and later with resistance.

Clear and concise knowledge of the extent of the paralysis must precede the institution of muscle building. There is nothing more detrimental to the recovery of an extremity than harum-scarum exercises. A detailed discussion of the maneuvers for particular parts of the body is not essential. If the fundamental principles of muscle training are kept in mind, any necessary group of exercises can be worked out with the aid of a little knowledge of anatomy and muscle physiology.

Under-Water Exercises. The tank, or under-water gymnasium, is being utilized with considerable success in the treatment of infantile paralysis. The warm water improves the circulation of the paralyzed muscles and the buoyancy of the water aids in active movements of the extremities. This sort of treatment is possible only in institutions, or in private swimming pools, in which water is heated. The importance of this type of exercise is so well recognized that a built-in tank has been added to the new physical therapy department of the Los Angeles Childrens' Hospital. A tank should be a part of the equipment of any center where extensive treatment of poliomyelitis is carried out.

Braces. Braces are applied to make walking possible, or to facilitate walking and prevent deformities. Braces have no beneficial effect upon the paralyzed muscles; the constriction required to secure them to the extremities impairs circulation and theoretically impedes repair. The benefits, however, derived from locomotion, counteract the untoward effects of fixation.

Braces for the lower extremities and trunk are of importance in aiding locomotion. Instability of the knee, due to quadriceps femoris weakness is the chief condition requiring brace fixation. Patients may learn to walk without apparatus when quadriceps paralysis is present in one leg, by hyperextending and locking the knee. If the weakness is bilateral, braces are essential. The long caliper splints, with or without locks, are commonly used. Foot drop can be overcome by braces with ankle joints which do not allow motion of the foot below a right angle. The reverse is true in calcaneus deformities.

Paralyzed trunk muscles are best supported by reinforced front-laced canvas corsets which extend from the trochanters to the axillae. The number and location of the steel ribs depend upon the extent of the paralysis.

It may safely be said that any patient with two good arms can be taught to walk with crutches even though the lower extremities and trunk are severely paralyzed. The crutches form two legs of the tripod, and the paralyzed extremities the third. The patient may either swing the body forward between the crutches or hunch one crutch and leg forward alternately.

Aeroplane splints are applied to the upper extremities to prevent deformities by holding weakened muscles in a position of relaxation; they are worn both night and day as long as required. Night splints are necessary to prevent undue muscular strain and deformities. Posterior wire splints are commonly used to prevent foot drop and knee flexion.

Late Surgical Treatment. Until the necessity for specialized surgical care arises, the patient suffering from infantile paralysis may be handled successfully by any well-trained medical man who will take the time to examine his patient carefully and obtain a clear conception of the problem. On the other hand, the surgical correction of deformities and other operative procedures which are undertaken to improve function, belong to the realm of the especially trained surgeon. Time does not permit a detailed discussion of the indications for, and the technic of, the various corrective operations. Certain fundamental principles referable to the mechanics of rehabilitating measures are worthy of some consideration.

Turning to joint and muscle physiology, it is noted that, in the normal individual, the muscles controlling movement of a joint are in such a state of balance that fixation may be obtained at any point in the arc of motion which will withstand varying degrees of strain. As a general rule, the nearer a straight angle is approached the greater may be the load. If, by chance, one or more of the stabilizing forces are eliminated, the stability of the joint will be diminished. This instability can be corrected only by re-establishing the stabilizing force or eliminating the point of motion.

These principles form the basis for all sound stabilizing operations upon the feet. The feet allow four distinct movements: flexion, extension, eversion and inversion, and their various combinations. For example, paralysis of the peroneal group of mus-

cles will result in an unstable inverted foot. The treatment resolves itself into a tendon transplant to replace the weakened muscles, or elimination of the joint which allows inversion of the foot, with balancing of the remaining forces. Ankylosis of the astragalus and os calcis will fix the point of motion and transplantation of the tibialis anticus to the center of the foot and the tibialis posticus into the tendo Achillis will balance the muscle pull. Function of the foot will then be improved without the patient being aware of the loss of motion in the subastragaloid joint.

Sacrifice of certain movements is justifiable to improve the function of the extremities. Fusion of the knee may be preferable to wearing a brace for life. This would be advantageous in an individual, such as a craftsman working at a bench, whose livelihood depended upon a stable weight-bearing leg.

Tendon transplantation in the lower extremities is usually associated with some of the stabilizing operations. Great care must be exercised to balance muscular forces after stabilization, in order to prevent the development of fixed deformities.

Provided the inner hamstring group is strong, transplantation of the biceps femoris forward, in case of quadriceps femoris weakness, gives a gratifying result.

The tensor fascia femoris may be substituted for the gluteus medius by changing its insertion to the great trochanter. Walking on a level is improved and the limp due to tilting of the pelvis disappears, while walking up stairs is rendered more difficult.

Tendon transplantation is often practical in paralysis of the upper extremity. The trapezius may be substituted for the deltoid, and the carpal flexors or extensors utilized as flexors and extensors of the fingers after fixation of the wrist joint.

Paralytic scoliosis is successfully managed only by fusion of the primary curve. A surprising amount of correction of old scoliotic deformities can be obtained by traction jackets. After the maximum amount of correction, the spine should be fused. If the scoliosis is allowed to progress until rotation of the vertebrae has occurred, marked deformities of the thorax are inevitable. Correction of the spinal curve has very little effect upon the contour of the ribs, in adolescence, while the improvement in the configuration of the chest may be striking in young children.

Leg Lengthening Operations. Shortening of the extremities is a frequent aftermath of poliomyelitis. While it is of little conse-

quence in the arms, it is of great importance in the legs.

Osgood and others at the Boston Children's Hospital, have made the observation that a sequestrum lying in contact with the epiphysis of a long bone stimulates growth of that bone. Acting upon this principle, ivory pegs were introduced into the epiphyses of the bones of the leg with rather startling increase in length of the extremity.

The femur may be lengthened about three inches by a "Z" or an oblique osteotomy and skeletal traction. Various elaborate mechanical devices are recommended to obtain this traction, but the unjointed Steinman pin is simple and practical. While there is no objection to pegging epiphyses in young children, the plastic operations on long bones are not recommended during the growing period. One can not be certain of the amount of permanent shortening before the eighteenth year.

It is hoped that this will be construed as an effort to renew interest in the various steps of the treatment of infantile paralysis, rather than to enter into a technical discussion of any particular phase.

An effort should be made to establish centers in this great expansive state of Arizona, to which children from any station in society might be brought for examination and proper treatment. This could well be done under the direction of your State Board of Health. The expenditure required for the work would be justified by the economic benefit derived during the present generation.

EPIGASTRIC PAIN WITH CONFLICTING SYMPTOMS

(Cabot's Case History No. 14162, New England Journal of Medicine, June 7, 1928).

Discussions by selected team from Maricopa County Medical Society at Phoenix, and by Group 2 of the Yavapai County Medical Society and Officers of U. S. Veterans' Hospital at Whipple, Ariz. Clinical histories were published in our September issue (q.v.).

Yuma County Medical Society

On October 9th, the Yuma County Medical Society discussed this case and have submitted the following individual diagnostic conclusions:-

Dr. Knotts:- Malignancy of head of pancreas.

Dr. Shields:- Carcinoma of body of stomach, with secondary involvement of liver and spleen.

Dr. Ketcherside:- Carcinoma of gall-bladder and liver.

Dr. Cain:- Hypertrophic cirrhosis of liver.

Dr. Reese:- Gallstone disease; endocarditis.

Discussion by Maricopa County Medical Society

DR. HOWELL RANDOLPH, PHOENIX.
DR. T. W. WOODMAN, PHOENIX.
DR. J. D. HAMER, PHOENIX.

(Dr. Randolph)

Upon cursory examination, it would seem that the abdominal symptoms are most prominent in this case. The chief complaint, "pain and gas on the stomach," together with persistent symptoms referred to the abdomen, jaundice, clay colored stools, an indefinite epigastric mass, all point to an abdominal intra-abdominal condition.

However, there is another group of symptoms and signs which are evidence of definite trouble in the cardio-vascular system: shortness of breath during the past year; palpitation for three months; high blood pressure; a systolic murmur widely transmitted, the first sound not wholly obliterated, with an occasional extra systole; enlargement of the spleen. There is evidently some degree of cardiac embarrassment.

While the shortness of breath was said to have grown progressively more marked during the past year, there was no note of it at the initial examination. Palpitation was said to have been present for three months. The term palpitation should be used rather guardedly, as too frequently this term is not understood by the patient (unless he has suffered from it). In history taking a more useful term or phrase is "heart consciousness" of varying degrees.

The actual pathology of the heart condition is very difficult to make out definitely, because of lack of data and of certain inconsistencies in the findings. Here we have a systolic murmur at the apex, transmitted widely. That would naturally point to a lesion of the mitral valve, or possibly but very improbably with the description of sounds at that area, of the aortic valve. With an aortic stenosis, the transmission of the murmur would be in the direction of the great vessels. A glance at the blood pressure immediately rules out both of these lesions as very improbable. A blood pressure of 214/100 is incompatible with a leakage at the mitral valve. With a pulse pressure of 114 we

must have an enormous forward movement of the blood during systole, whereas if the mitral valve were incompetent to any marked degree, with the blood moving both back into the auricle and forward into the great vessels with systole, the pulse pressure as a rule is not greater than thirty or forty. It is very seldom as high as sixty. With a pulse pressure over 100 it is difficult to think of any pathological condition other than aortic insufficiency as a cause (except in marked elevation of both systolic and diastolic pressure). When blood pressure is taken under conditions of strain, the pulse varies considerably from that taken in the same patient under conditions of rest, which may account for the drop in pulse pressure to 74.

And yet, an aortic insufficiency is hardly conceivable in this case in the absence of all the signs, including diastolic murmur.

In cases of hypertension there is not infrequently heard a systolic murmur of the nature of that found in this case. It is interpreted to mean a relative incompetence of the mitral due to enlargement of the mitral ring, and it would seem that this was the most likely explanation for the murmur in this case. The hypertension here is probably on an arteriosclerotic basis, with a low grade renal damage. It is unfortunate that we have no report of urine examination, which I should expect to show a small amount of albumin with casts. There would probably be an elevation of the blood nitrogen with a definite reduction in kidney function.

The loss of weight was very gradual from about the time the hypertension was probably established four years before up to five months before her last visit. In the last five months 36½ pounds were lost. This can conceivably be accounted for by a functional disturbance of the gastro-intestinal tract secondary to the cardiorenal complex.

A crucial point in the differential diagnosis in this case is the presence of jaundice. We have here two definite attacks, one of them observed, associated, it was thought at one time, with clay colored stools. If that is reliable, there must be an obstructive type of jaundice. Without the history of clay colored stools, chronic passive congestion of the liver might be considered as a possible cause of the jaundice. There is marked splenic enlargement, but no notation as to the size of the liver. Advanced mitral valve lesions cause jaundice from chronic passive congestion at

times, but there are usually signs of congestion of the lung as well.

Summing up the case from the cardio-renal standpoint, it would seem probable that we should find myocardial changes toward fibrosis, with hypertrophy and dilatation of the left ventricle, and dilatation of the mitral ring to small degree. Arteriosclerosis. Arteriosclerotic changes in the kidney. Chronic passive congestion.

(Dr. Woodman)

From the standpoint of surgical differential diagnosis we have in this woman a patient with severe pain in the epigastrium diffusely radiating, associated with jaundice and a marked loss in weight, a palpable mass close to the mid-line in the right upper quadrant, and, according to the x-ray, an irritable, rapidly emptying stomach. The conditions surgically that must be differentiated in this case, I believe, are cholelithiasis, carcinoma of the gall bladder, carcinoma of the head of the pancreas, other neoplasms of the pancreas, cyst of the pancreas, pyloric tumors and ductus choledochus tumors.

Cholelithiasis could fit in with this clinical picture. The jaundice is recurrent and does not persist. This would suggest a stone in the common duct even though the pain is not radiating to the right scapula as it does in the classical case. A negative Graham test does not necessarily mean that stones are not present, although as a general rule we are able to demonstrate them by the Graham method. Dr. Sweek and I operated on a man of this type last year. The Graham test was negative, but when we opened the abdomen we found several hundred small stones packed into the gall bladder, the hepatic, cystic and common ducts, and also in a pocket in the liver substance. The clay colored stools certainly mean obstruction of the common duct from some source.

Carcinoma of the gall bladder with stone cannot be ruled out in this patient. Malignancy is suggested by the marked loss in weight even though the red blood count has not diminished from the normal. We would expect however that in a case of malignancy of this long standing there would be some secondary anemia.

In carcinoma of the head of the pancreas the jaundice is progressive and rarely subsides as it did in this case. Pain is constant and vomiting is frequent.

In pancreatic neoplasm the gall bladder is usually enlarged and not tender. Such an enlargement would have shown in the x-ray when the Graham test was made.

A pyloric tumor usually changes with changes in posture and respiration and also is spontaneously mobile. Negative x-ray does not necessarily rule this type of tumor out but there would certainly be apt to be sufficient spasm of the pylorus or sufficient encroachment on the lumen to be detected by x-ray.

Ductus choledochus tumors would give a more progressive and more persistent type of jaundice as the tumor grew and caused more and more encroachment on the lumen of the duct.

A pancreatic cyst, benign, specific or inflammatory tumor of the pancreas would give progressive jaundice and not intermittent as was present in this case.

Carcinoma of the stomach could—with metastases to the liver—give this picture. The jaundice in such a situation, however, would be apt to be progressive, if present. Such a tumor should be easily palpated in a woman as thin as this patient undoubtedly was. Then too we would expect a secondary anemia which was not present in this case.

In conclusion, I would say that the most logical diagnosis on a basis of the history and clinical findings from a surgical point of view would have been cholelithiasis with a ball-valve obstruction in the common duct; this despite the fact that the Graham test was reported negative. Probably malignancy was starting in the gall bladder.

Certainly, despite the fact that this patient constituted what is generally considered a very poor surgical risk, I believe that no harm would have been done if an exploratory incision had been made in the right upper quadrant, close to the mid-line, under local anesthesia.

(Dr. Hamer)

This case is rather obscure, both from standpoint of the findings relative to the vascular system, and to the gastro-intestinal system. There is nothing in the patient's past history to suggest a diagnosis, or lead to a diagnosis, although the patient does date the onset of her trouble back to an attack of "gas and pain" following a hysterectomy thirteen years previously. The case record does not tell us the exact time of the attack in relation to her operation, but it is probable that it was associated with her post-operative course and has nothing to do with her present illness.

From the laboratory, we have a red count, white count and hemoglobin within normal limits, an important point to remember in this case because the lack of an

anemia would tend to discourage a thought about malignancy, at least any type of malignancy which had reached any degree of progress. The Graham test and x-ray findings are essentially negative. These are important and can prove of assistance, but here they do not; however, it must be remembered that the visibility of calculi do not prove that they are the cause of symptoms, for they may be latent.

From the complaints and physical examination, one is suspicious of grave pathological disturbances in the upper abdominal region, and in a differential diagnosis one has to consider all diseases accompanied by pain in this region, of a chronic and recurring nature. To me, the presence of jaundice and clay colored stools indicate obstruction in the common duct, and I hardly think it necessary to dwell upon lesions of the stomach or duodenum, unless it would be malignancy metastasized to the liver or biliary passages; but the time element and lack of anemia rule this out.

I think this is a case of gallstones, causing partial obstruction, with symptoms due partly to mechanical factors and partly to infection. The jaundice in this condition is of varying intensity, but, as a rule, not deep. From time to time, one gets attacks of pain, the jaundice deepens, and fever rises, if the attack lasts any length of time. The gall-bladder is usually not large, the spleen is usually palpable, the stools vary in color and are generally paler than normal, emaciation is common and often attains a degree that is suggestive of cancer. This patient no doubt had an enlarged spleen, because a palpable spleen usually means an enlarged one. Was there an associated enlarged liver? The records do not state. I take it though, that if the liver had been enlarged, it would have been noted. Apparently, too, there was no ascites, so one can decide with reasonable certainty that he is not dealing with a lesion causing portal or venous obstruction.

A neurosis had been diagnosed in this case, but one must be very cautious here. Hysteria may be accompanied by pain suggestive of gallstones, but the irregularity of attacks, the presence of stigmata of hysteria and absence of localized tenderness, point the way to a true diagnosis. An hysterical individual may be afflicted with gallstones. From gastralgia or neuralgia of the stomach, (a condition of paroxysmal attacks of pain) one should seek a further diagnosis, because this condition is rare and even questionable as to its existence. Riedel estimates that 97 per cent

of these cases are due to gallstones. But the presence of jaundice here rules out a simple uncomplicated stomach disorder.

One must consider congenital adhesions. As Niles, in 1925, points out, this is a fairly common condition, especially in women, and may give rise to attacks of pain or to symptoms of neurasthenia, with indigestion. The diagnosis rests chiefly with the x-ray, which shows a pylorus further to the right than normal and very high, the apex of the duodenum being also high and fixed.

One should always remember to think of tabetic crises in these cases. However, this condition is unlikely here, although there is no data to rule it out, except jaundice.

Dr. Woodman has touched upon the possibility of pancreatic lesions, so I will not elaborate. It must be remembered that chronic pancreatitis is, in many instances, a complication of gallstones. Its recognition, however, before operation, is usually impossible. An enlarged pancreatic head is seldom palpable, but in rare instances it presses upon the common duct and causes jaundice, with a dilated gall-bladder; this syndrome suggests malignancy. Carcinoma of the gall bladder in its early stages, often resembles cholelithiasis, with which, indeed, it is sometimes associated. If carcinoma is present here, it is so early that deep jaundice, metastases and cachexia, are lacking.

Dr. Randolph has given us his conception of the possible diagnosis with reference to the vascular system. Should one consider angina pectoris or coronary thrombosis in the light of this patient's findings? Possibly so. Angina may be simulated by atypical biliary colic or vice versa. And in angina sometimes the pain may be confined to the epigastrium. Usually, though, other findings of angina suffice to make a diagnosis, if sought. Coronary thrombosis may simulate upper abdominal lesions and should be kept in mind in every case of upper abdominal pain in a person over 40 or 45 years of age. A history of previous heart trouble, hypertension and recurrent stomach trouble is significant. But here we have no basal rales in the chest, no enlarged liver, no friction rub over the precordium, no low blood pressure, as suggestive of coronary occlusion or thrombosis.

Diagnosis:—Cholelithiasis.

DR. WATKINS:—There is evidently some confusion about the significance of the Graham dye test. The fact that the test was "negative" has a definite significance in suggesting a pathological organ. The gall bladder which does not outline with the dye

is now considered a diseased organ, with certain possibilities for error. If the test is repeated a second time, with the same "negative" results, we do not hesitate to give a "positive" report of pathology in the bile tract. It means either that the gall-bladder cannot fill with dye impregnated bile because of obstruction, or that it cannot fill because of inability to empty the bile which is already in it. In either event, there is a positive indication of disease.

Discussion by Yavapai County Fort Whipple Group

DR. H. T. SOUTHWORTH, Prescott
DR. GEORGE BASSETT, Whipple
DR. W. E. McWHIRT, Whipple

(Dr. Southworth)

Very briefly our case is one who reported four times to the out patient department during a period of eight weeks. The outstanding symptoms were loss of weight, digestive disturbance, jaundice, a palpable mass in the abdomen, and heart with palpable spleen.

Less briefly our case is a woman of 58 years who had lost considerable weight during the past four years, particularly the past six months; fifty-six pounds in all, twenty-eight in the past six months.

One year ago she developed a digestive upset, gas and pain relieved by soda or eating a cracker. Ten days ago she noticed slight jaundice with fever; also one year ago she developed a marked shortness of breath, persistent to present time, and which became worse.

Physical examination shows a woman with hypertrophied and infected tonsils, pyorrhea and carious teeth, heart not enlarged but has a loud systolic murmur widely disseminated, palpable spleen and a mass in the right upper quadrant near the mid line.

Hemoglobin was 80 per cent, reds 4,500,000.

X-ray of stomach showed no lesion, but a slightly sluggish peristaltic wave; duodenal cap irritable and empties rapidly. Gall bladder reported negative.

Progress of case: ten days after this she reported that she was free from pain. In the meantime the pyorrhea and carious teeth had been extracted. In two weeks she reported again still better. At this time the blood pressure was 214/100.

Four weeks after, which is the end of the eight week period, she reported that one week before she had had a very severe digestive disturbance; she had gas, was always hungry, sharp pains in the stomach and burning in the back; and one day she

had rather marked jaundice. Blood pressure at this time was 176/104; weight was 98½ pounds, a loss of eight more pounds during eight weeks.

She was told to report again in one week but failed to do so.

(Dr. Bassett)

A brief and very comprehensive picture of this woman has been given. We must take into consideration a few things: she had a bad heart, bad kidneys, high blood pressure, infected teeth, pyorrhea, bad tonsils, also pain in the stomach. Was the stomach trouble a result of these multiple conditions? There was some diffuse pain at times. The history states that a slight tumor mass was felt near the mid line, upper right quadrant. Under ordinary conditions that palpable mass may not have been palpable at all. This woman had lost nearly sixty pounds and was far from fat; it would not take much of a tumor to be palpable. X-ray of the gastro-intestinal tract was negative except for rather sluggish peristalsis and a little irritability of the pylorus. Barium enema check was negative. There could not have been cancer for any length of time without showing in the abdomen and the effects appearing in the lower extremities. She had two rather general attacks of jaundice;—the gall bladder examination apparently was normal. Considering disease of the pancreas, we expect a certain number of symptoms, the most prominent of which is vomiting and failure of digestion. There was no vomiting except one time when it was induced. There was diarrhea. One condition which we might expect is ulcer of the stomach, of which also one of the most prominent symptoms is vomiting. In a study of over fifty cases of gastric ulcer, hemorrhage occurred in practically all cases at some time. In our case there is no record of hemorrhage. The attacks were reported as rather irregular, which is not true in ulcer of the stomach, the attacks being rather prolonged over a considerable period, especially in one who has not consulted medical advice or been put on a diet. She got relief from these indigestion attacks by taking a little soda or anything to neutralize the lactic acid, or tendency for food to stay in the stomach instead of passing on down. Further along, in the duodenal region, is the favorite place for ulcers. In ulcer of the duodenum it is not very common for hemorrhage to occur, although occult blood is frequently found (the stools were not examined for occult blood). Even though bleeding may occur it is very infrequent. However, there is a tendency in duodenal ulcer, as in gastric, to

vomit. A great many duodenal ulcers are chronic and the attacks intermittent, differing somewhat from gastric attacks, and may be very severe. This woman's attacks do not coordinate with our true picture of duodenal ulcer, but they do come closer to the picture of duodenal than gastric. The emaciation may be due to spasm of the pyloric ring. The diagnosis, duodenal ulcer, holds first place in my choice of diagnoses in this case, and it is the diagnosis agreed upon by our group.

(Dr. McWhirt)

Our case is a woman 58 years of age, who comes to the out patient department for relief of pain in the stomach and gas. She brings a letter from her attending physician which gives the diagnosis of gastritis and neurasthenia. We hardly feel that this diagnosis will account for all the symptoms and findings in this case.

A patient who has lost, over a period of four years, sixty pounds, and in the last few months thirty-five pounds or more, makes us think very seriously of malignancy. We first considered malignancy in the region of the stomach, but the classical symptoms are absent; malignancy of the liver, but there is no acites or edema; malignancy of the pancreas,—marked jaundice and cachexia are present in this disease,—they are absent in our case. Ulcer of the stomach: while this possibly is the cause of our trouble, our group feels more inclined to duodenal ulcer. We have to rule gall bladder out of the picture as there apparently is a negative Graham test. Ulcer of the duodenum will account for these occasional attacks of indigestion with the periods of well-being in between. In duodenal ulcer of long standing we always have a chronic duodenitis and with this condition, inflammation of the bile and pancreatic ducts with occasionally a low grade pancreatitis. In this condition there is occasionally a slight enlargement of the spleen. If our deduction of possible low grade pancreatitis is correct, this would account for a considerable part of the loss of weight, considering that she has pyorrhea, chronic tonsillitis, together with endocarditis.

The diagnosis of our group is duodenal ulcer, duodenitis chronic, inflammation of the gall ducts, inflammation of the pancreatic duct and sub-acute endocarditis.

Discussion by Massachusetts General Hospital Staff

(B. THURBER GUILD, M. D.)

I feel that gastritis is a very poor diagnosis to make unless it is toxic, as in alcohol or iodine ingestion. Neurasthenia is a very difficult diagnosis to make and I prefer to leave it for others!

"She dated the trouble from a hysterectomy for fibroids of the uterus thirteen years previously." That statement conflicts somewhat with the fact she came in complaining of disturbance of two months' duration. "She was in good health until three years before the visit" is another discrepancy. I get the impression from the history that she probably had disturbance of digestion for some period of time, and that these dates were fixed in her mind when the condition was more acute.

I saw this patient in the Out-Patient Department, and I remember that this pain was a very definite thing with her, also that it was definitely relieved by eating a small amount of food or by soda.

In considering the question whether this might be gall-bladder disease I do not think that we can feel as a point in favor that the Russian oil gave the relief that an animal fat might have given by emptying the gall-bladder. I do not think a mineral oil would act in that way. It might however have coated over an ulcer of the stomach and thus relieved.

The statement about bowel movements is rather against cholecystitis.

Ten days before the visit is, I believe, the first time that she had jaundice. We could get nothing further back than that.

The loss of weight of course, turns our attention to the question of malignancy. It could have been explained by the diet she might have been following for peptic ulcer, but is not in line with the diagnosis of cholecystitis.

"Occasional diarrhea" makes us think of malignancy and possibly gall-bladder. Dark urine could mean bile. Pyrosis would be less favorable for a diagnosis of malignancy and more suggestive of ulcer.

I think in the face of later data we shall have to believe that "heart not enlarged" was an erroneous finding. The heart would have to be enlarged with that pressure. Probably the aortic sound was transmitted to the apex rather than an apical sound to the aortic region.

The mass could be any one of the three things we are considering.

She was put on a five-meal bland diet—the idea being that we were dealing with a duodenal ulcer. It might not be duodenal because of the early pain after eating.

We were still considering the possibility of malignancy and cholelithiasis with cholecystitis but ulcer symptoms seemed to predominate. I think the x-rays were reported as negative. Sluggish peristalsis seemed a peculiar finding in view of the fact that she had pain so soon after eating.

Patients frequently think they are jaundiced when they are not; but if they are presumably jaundiced and have itching it is a little more determined.

Whether the reaction in her blood pressure was due to having her teeth extracted or to the loss of weight I do not know.

We considered chronic pancreatitis but ruled it out; also possible malignancy of the pancreas secondary to a gall-bladder condition, but she had no fatty stools and no glycosuria.

By a fortunate coincidence a student who was working with me visited one of our large hospitals and in walking the wards accidentally found our patient. The visiting man spoke of the case, made his diagnosis, and told what had been done. He rather laughingly remarked that she had been to the Massachusetts General Hospital, where we had been treating her for gastric ulcer. She had had cholelithiasis, was operated on, and was very much better. When our student told him how classical the symptoms were for ulcer he was much more interested.

HOSPITAL REPORT

A report from this hospital is in brief as follows:

"January 3. This is an elderly, emaciated, jaundiced little woman who enters the hospital because of recurrent attacks of epigastric pain of three years' duration.

"There is a history of many years of attacks of upper abdominal indigestion and discomfort which are consistent with gall-stones and not inconsistent with an ulcer. There is a recent history of more severe acute attacks and of jaundice beginning about two months ago. She has been under observation for some time at the Massachusetts General Hospital and we understand that ulcer was tentatively diagnosed but that gastro-intestinal studies were made which failed to show it. They were about to pursue investigation of the gall-bladder further when the present acute attack caused her local physician to advise her immediate admission to this hospital.

"Local examination shows a palpable liver border, practically no tenderness over the gall-bladder region and no gall-bladder to be felt. The spleen is distinctly enlarged, the edge coming just below the costal border on deep inspiration. Patient shows a marked icteric tint of the skin and sclerae. Bleeding and clotting time are normal. It seems beyond doubt that she has just recovered from a very severe attack of gallstone colic with the passage of a stone into the common duct. Whether it is still there or not cannot be told. In spite of the jaundice there is plenty of bile in the stools. No noteworthy elevation of leukocytes so that no cholangitis seems to be complicating the situation.

"Operative note, January 7. Cholecystectomy. Choledochostomy for chronic cholecystitis and cholelithiasis. Excision of small myoma of stomach. Hepatic cirrhosis."

"Roentgen study, January 30. The esophagus appeared normal. The stomach showed good position and tone, active peristalsis, a smooth outline and no six-hour residue. The duodenal cap showed a deep notch on the lateral or greater curvature border, but was not demonstrably fixed or tender. The ileum was normal. The cecum was tender but well filled and freely movable. Motility was good. Impression: Duodenal ulcer.

"Discharge note, February 19. The patient is discharged today to return to the Gastro-Intestinal Clinic in three weeks, where her duodenal ulcer will be treated. In the meantime she has been instructed to take a five-meal Sippy diet with powders p.c. Inasmuch as it is causing her no symptoms at the present time, and also because of the fact that the ulcer appeared to be a chronic, perhaps 'healed' one when seen at the time of operation, it is very probable that the gall-bladder was the etiological agent in producing the patient's symptoms prior to the operation, inasmuch as the pain was typically gall-bladder in type.

"Diagnosis: Cholecystitis, chronic. Cholelithiasis. Fibromyomata of stomach wall. Hypertension. Duodenal ulcer."

FURTHER DISCUSSION

My impression is that if she had jaundice the bleeding and clotting times would not be normal, but I am not sure about that. On the other hand if she were having brown stools at that time and no bile in the urine, her blood may have become normal though she still showed a jaundiced skin.

What treatment she had in the interim between the operation and her discharge I do not know; probably some form of Sippy diet.

I chose to report the case because I do not remember finding another case with both ulcer and gall-stones in the same patient, but I am inclined

to think that infrequently they may be present together. Some investigators talk about gastric ulcer being the result of infection, and if there is infection in the gall-bladder it may produce duodenitis. She certainly had classical signs of ulcer, also as classical as they can be of cholelithiasis, and according to the operation and later x-rays she had both conditions.

DR. CABOT: Did they see anything of the ulcer at the time of operation?

DR. GUILD: The report states that the ulcer appeared at the time of operation to be a "chronic, perhaps healed" one. The loss of weight seems to me excessive for that condition or the combined condition. Possibly we may have another diagnosis to make in the future.

DR. CABOT: They found no ascites?

DR. GUILD: None in the report.

DR. CABOT: What can you tell us about this, Dr. Holmes?

DR. GEORGE W. HOLMES: As these notes read, the Graham test showed no visible stone. Is there a possibility the dye was not given?

MISS PAINTER: They asked for a Graham test. DR. HOLMES: There may have been another examination. This is a plain film of the gall-bladder and fails to show any stone. Of course, if the patient had had the dye, it would mean that she had a diseased gall-bladder. If she had not had it, it would mean practically nothing. Was that appointment for a re-examination of the stomach or of the gall-bladder?

DR. GUILD: They asked for a Graham test on the record.

DR. HOLMES: Sluggish peristalsis or hyperperistalsis means very little unless we have other things to go with them. The same patient may show sluggish one hour and hyperperistalsis the next. The first time the patient is often frightened and the stomach does not move at all. She had had one x-ray examination when Dr. S. saw her, and had probably got over her fright. We did mention that the duodenum was irritable. That of course means that they had difficulty in filling it and were not quite sure whether it was normal or not. What we usually do in these cases is to suggest that the examination be repeated. If we did not do it I should say we were open to some criticism for not going so.

MISS PAINTER: She entered the other hospital, and did not come back here.

DR. CABOT: There is a phrase in the other hospital record which I wanted you to interpret: "The duodenal cap showed a deep notch in the lateral or greater curvature border." What about that notch? What does that mean?

DR. HOLMES: It probably means an incisura opposite the ulcer. Such a notch may be due to spasm from any cause. That alone would not be sufficient, I think, to make the diagnosis. But perhaps it means more than that to the man who uses that term. Some notches would be significant, others would not.

A PHYSICIAN: The patient in that particular instance was having gall colic pains. Would that give a notch?

DR. HOLMES: The duodenal bulb is apt to be deformed in gall-bladder disease and may be misleading. We are beginning to think that when we get a persistent deformity of the cap it usually means ulcer. This appearance of spasm and all those things are becoming of less and less value. We are studying the cap and finding ulcer earlier and smaller, and the number of cases in which the vomiting can be attributed to some other cause is getting less and less.

DR. GUILD: I would like to know if in the

necropsy findings you have found this combination?

DR. TRACY B. MALLORY: I think we do not very often find marked degrees of the two together. A good many patients with gastric ulcer show mild chronic changes in the gall-bladder, just as almost every appendix shows remnants of infectious changes. We very seldom find a perfectly normal gall-bladder. From one point of view we could say that the gall-bladder is frequently diseased in patients with gastric ulcer, but I believe it is not to a serious degree.

DR. CABOT: Is it any more diseased in peptic ulcer than it is in other conditions?

DR. MALLORY: I think not.

DR. CABOT: Just the "normal amount" of gall-bladder disease.

DIAGNOSIS

Duodenal ulcer.

Chronic cholecystitis.

Cholelithiasis.

EPIGASTRIC PAIN, VOMITING AND DELIRIUM

(Cabot's Case No. 14101, New England Jour. of Med., Apr. 26, 1928 p. 518.)

Below will be found the discussions of selected teams from the Maricopa County Medical Society, at their meeting of October 15th; of the Yavapai County Medical Society and Medical Officers of U. S. Veterans Hospital at Whipple, Ariz., at their meeting of October 16th; and diagnoses from the Yuma County, Ariz., Medical Society.

For the Case History, see September issue of this journal, p. 413.

Discussions by the Maricopa County Medical Society.

DR. GEORGE C. TRUMAN, Mesa, Ariz.

DR. R. J. STROUD, Tempe, Ariz.

(Dr. Truman)

The case under discussion does not present a clear cut picture of any single pathological condition, but gives such a varied history and physical findings as to lead one to believe that several lesions may be present.

I do not believe that there will be any dissension from the opinion that we are dealing with an acute abdominal condition and that the autopsy findings will be mostly in the abdomen proper and not in the pelvis. The mode of onset was sudden, forty-eight hours before admission, with pain in the epigastrium and vomiting of blood. Twenty months before, menses had stopped, nor were they replaced by vicarious bleeding from any mucous membrane or it would certainly have been mentioned in the history, so we need not consider this a part of the menstrual cycle.

Upon physical examination there were found as positive signs of pathology: a small draining sinus in an old appendiceal scar, a tympanitic abdomen with no dullness in the flanks, pain on deep pressure in the right

hypochondrium and epigastrium, with fever. The appendix had been removed, so that it is not necessary to consider that as a factor in the condition present. A sinus from the old appendectomy was present and from its chronicity one is led to believe that the original appendiceal involvement may have been tuberculous in character. However, the peritoneal irritation present is more than likely not tuberculosis because it is of short duration (forty-eight hours), and is not accompanied by any fluid. No mention is made of jaundice, and bile was found in the stool, so that there was no stoppage of liver function nor interference with the passage of bile from the liver to the duodenum.

In reviewing the history of this case there is only one thing that stands out. The acute illness started with the vomiting of a quantity of blood. Where did the blood come from? The diagnosis of the case probably hinges on this point alone, since all of the acute symptoms followed after this vomiting. Vomiting blood may come from the stomach or other parts of the gastro-intestinal tract. Bleeding from the stomach may be from local or general causes. The local causes are again divided into direct and indirect.

The direct local causes include ulcers, simple and tuberculous, diphtheritic and septic; gastritis, simple, acute and chronic; varices and miliary aneurisms; cancer and trauma. The trauma may be physical and chemical. Among the physical causes are foreign bodies, the strain of vomiting, injury from the stomach tube and acute distention. Among the chemical causes are poison, emetics and purgatives.

The indirect local causes include portal obstruction, cirrhosis of the liver, syphilis of the liver, atrophy of the liver, pressure on the portal vein, portal thrombosis, thoracic disease with circulatory obstruction, emphysema, chronic pleurisy, fibroid lung and organic heart disease. In bleeding due to general causes, there are hemorrhages from other mucous membranes besides the gastric. The general causes include sepsis, the exanthemata, typhoid, hematemesis neonatorum, autotoxic states, anemia, blood dyscrasias and diseases, hemophilia, purpura, scurvy, pernicious anemia, leukemia, neuropathies, epilepsy, tabes, general paralysis, hysteria, meningitis and vicarious menstruation.

Bleeding from epigastric sources may be due to esophageal varices, abscess contiguous to the stomach, or ulcers or fistulas may open up a tract leading to the stomach resulting in hemorrhage. Aneurism of the ab-

dominal aorta or celiac axis may perforate the stomach and cause hematemesis.

Taking up the direct local causes of bleeding, ulcers of the stomach or duodenum cannot be eliminated; in fact the past history would lead one to suspect that an ulcer may be present. The fact that the vomiting was not continuous would seem to eliminate any form of gastritis. There is no history of trauma or the taking of poison, so that physical and chemical agents need not be considered. There was no cachexia present which would seem to speak against cancer.

Considering the indirect local causes we have cirrhosis of the liver. There was no jaundice present, neither was there any ascites. The x-ray did not show any marked evidence of thoracic disease, and physical findings showed only a murmur at the apex which was not transmitted. These murmurs are sometimes found following hemorrhage, so we cannot say that the hemorrhage was due to it.

In considering the general causes of hemorrhage, we can eliminate at once all of the blood diseases such as pernicious anemia, leukemia and hemophilia, as the blood picture showed only a secondary anemia. There is no history of epilepsy. There is a possibility however that there may be an infarction of some of the abdominal arteries. The usual one is the mesenteric. The source of the infarction could be the chronic infection in the sinus lying in the appendectomy scar. The Wassermann is negative, so also is the history for luetic infection. Vicarious menstruation has already been eliminated from consideration.

We will give the extra-gastric causes of bleeding little consideration because the hemorrhage was not excessive nor was it accompanied by any visible amount of pus such as would happen if an abscess had ruptured into the stomach.

By process of elimination we have arrived at two possible causes of the hematemesis in the case. They are gastric ulcer and thrombosis of arterial circulation especially the mesenteric artery.

The rapid pulse, high temperature and distention speak for two other possibilities; that is general peritonitis such as would follow a ruptured gastric ulcer and acute pancreatitis which can also be accompanied by gastric hemorrhage as one of the general causes.

The diagnosis lends itself to four possibilities:

I and II. Ruptured gastric ulcer with peritonitis.

III. Thrombosis of the mesenteric artery.

IV. Acute pancreatitis.

The pain and collapse was not severe enough for acute pancreatitis, which leaves the first two possibilities. My first choice would be ruptured gastric ulcer because of the previous history of gastric distress with mesenteric thrombosis as second choice.

(Dr. Stroud)

This case has a lot of features that are interesting, and yet irrelevant to a diagnosis. I shall try to analyze a few of the points which go to make up the case, as Dr. Truman has taken it up from a standpoint of the significance of bleeding from the stomach, and the possible diagnoses with the final diagnosis, as far as can be determined from the meager history.

This young woman has had an irregular catamenia, probably the result of thyroidectomy. The uterus has lost its function because of endocrine deficiency, by the loss to the ovaries of the thyroid stimulation, just at the time of life when the stimulation was most necessary. Then for twenty months the necessary hormones were entirely lost and no menstruation has taken place. We do not know just how much this had to do with her despondency, but the suicidal intent could come from this lack of ovarian stimulation. In fact, it is with some trepidation that surgeons remove ovarian tissue from young women before thirty years of age. The menses stopping, there were certain symptoms referable to the stomach at the time when they should have commenced, and continuing one day. There is no mention that blood was in the stools as this may not have been macroscopic or noticed if able to be seen. How much of a vicarious menstruation is here, we do not know. Then when the physical examination was done, no mention of infantile uterus or other abnormal condition of the adnexa is made. On the other hand, the lack of apparent vitality can be explained by the fact that she must have had somewhere, at some time, some debilitating disease with either an absorption or toxemia, or a loss of blood from some cause. The case history says that two years before admission, she had an appendicostomy for colitis, and then states further that she had a mucous colitis of twenty months standing, an apparent error in history taking, for the original colitis must have been a mucous colitis, and was no doubt of some time standing before the operation.

Taking up the question of mucous colitis and causes, we have first, amebic dysentery, acute or chronic. She gives no his-

tory of an acute attack of dysentery, and no data is given us as to work done on stools. Mucous colitis can also be caused by coli or streptococcus organisms lying in the folds of the colon, and propagating there, or the streptococci or other organisms may have their habitat in the gall bladder, appendix or the edges of a stomach ulcer, and quantities of them may be propagated at various times to set up a mucous colitis. Then the pressure from growths, such as tumors of the adnexa, retroverted uterus etc., may set up a mechanical colitis, or at least destroy the resistance of patches of the colon to organisms.

We note also, a blood pressure of 130-70, and pulses are described as not of good volume and tension. This statement of pulses not being good volume, is challenged by some clinics and yet there is a clinical distinction between a good and a bad pulse. The old drainage of the appendix probably has nothing to do with the picture. The soft blowing murmur (systolic) of the heart would be heard in any heart embarrassed as this was. The blood shows an active fight against some organism, and that a massive battle between the organism and the host is going on, with the host on the losing end, because of the anemia as shown by the blood counts, and pale mucous membranes.

The x-ray picture of right lung would rather point somewhat indefinitely to pressure upwards from the liver, or below the diaphragm, for it is less radiant than the left, especially at the base. The urine on the day of admission was negative. Two days later the kidneys showed signs of embarrassment, and that some acute process had affected it. There is no doubt of some cloudy swelling, and the presence of pus would indicate an active lesion. The abdomen being distended and tympanitic throughout, with tenderness over the right upper quadrant and epigastrium on deep palpation, rather points to an entity in that region. Still there are no outstanding and definite symptoms of any kind which lead one to a definite diagnosis of trouble below the diaphragm. Dr. Truman has already gone over the bleeding from the stomach. It is possible in all cases that idiopathic bleeding may take place from the stomach, especially when in single amounts. The remote abdominal conditions that could give such a picture, would be towards the mesentery or omentum, besides the conditions mentioned by Dr. Truman.

The lumbar puncture shows a spinal fluid count of 350 leukocytes. This, no doubt, is just part of the picture of the terminal

infection, and does not get at the original cause of the trouble. Acute meningitis would give this picture, although I believe it is terminal to the original cause. Pus in the kidney, and this finding in the spinal fluid, seem to me to be a terminal thing with the original cause elsewhere. Blood culture is not mentioned.

My diagnosis, is therefore, that of some debilitating disease below the diaphragm with an acute attack developing suddenly which gave rise to bleeding from the stomach, and further to peritonitis with some mass high on the right side below the diaphragm, and with a spreading of this infection throughout the body to give a terminal meningitic and kidney condition. While indefinite, the closest diagnosis would be a chronic ulcer of the stomach on the posterior surface, rupturing into the lesser peritoneal cavity, producing tenderness and a mass, and which went on to peritonitis, and terminally the organisms finding their way through the body, to distant organs, as the kidney and brain. I know of no other entity that will quite fit the conditions, although the fit is imperfect.

Discussions by Yavapai County Medical

Society and Medical Officers of Fort Whipple, Group, I.

DR. J. T. MALONE, Whipple, Ariz.
DR. JAMES H. ALLEN, Prescott, Ariz.
DR. C. C. BENEDICT, Whipple, Ariz.

(Mr. Malone)

One of the most significant factors in the history of this case is the statement that forty-eight hours before admission the patient expectorated a cupful of brownish-red blood. Going a little deeper into her past history we find that thirteen years before her admission she had a thyroidectomy performed. We are rather surprised that a girl of twelve years should have been submitted to such radical surgical procedure, as we rather suspect the usual type of thyroid involvement occurring at that period. It appears, however, that some endocrine unbalance has persisted since the removal of the thyroid, for we are told that her menses have always been irregular, that she has been depressed, melancholic, and had attempted suicide. Moreover, the history tells us that twenty months prior to admission to the hospital she had a complete suppression of menstruation, and that coincident with the cycle she had a moderately severe epigastric pain. You will recall that at the onset of this present illness, and associated with the blood spitting, she had epigastric pain. We have considered the possibility of vicarious menstruation to

account for the hemoptysis. We realized the necessary requisites in making such a diagnosis and ignored it in the belief that we shall be able to convince you that this bleeding did not originate from a normal organ. Ectopic pregnancy was likewise considered as a possible factor in the differential diagnosis and will be further discussed by my colleague. Examination revealed a fairly well developed and nourished woman. On examination of the chest we are told that a systolic murmur was noted at the apex. We were more or less interested in that murmur in our preliminary perusal of the history, for we thought of a vegetative mitral valve and a resulting brain embolus. We are told that the heart was not enlarged and the murmur was not transmitted. Furthermore a roentgenogram of the chest, taken perhaps as a routine, did not mention a suspected cardiac enlargement. Therefore, it appears that we are justified in ruling out a cardiac valvular involvement, consider the murmur as a functional one, and dismiss the heart from the picture. We are however, deeply interested in that roentgenogram of the chest, not from the standpoint of suspected pulmonary pathology, but rather as a suggestive pneumoperitoneum under the right diaphragm. It is true that the roentgenologist merely stated that the right lung was less radiant than the left, especially at the base, and with this exception the lungs were normal. We are interested in the opacity at that base for the reason stated above and the linking up of the picture with a perforated duodenal or gastric ulcer. In a recent article by Gibson of New York in the Journal A.M.A., (reporting a series of perforated gastric and duodenal ulcers), air in the region of the right diaphragm was a predominating factor in the differential diagnosis of acute abdominal conditions. The abdomen was somewhat distended, tympanic and tender over the right upper quadrant and epigastrium. We do not have a typical picture of a severe peritonitis nor would we suspect same in the time interval. Gastric and duodenal contents are not highly septic, if at all. But we believe we have a picture of an early peritonitis associated with a perforated peptic ulcer. The history further relates that she had had an appendicostomy two years before admission, and that at the present time there is a fistula over the site of the operation scar with a slight purulent discharge. Her stools were of the colitis type and examination revealed gross blood and bile. We presume that a diagnosis of amebic dysentery had been previously made and the appendicostomy

was for the purpose of irrigating the bowel. They tell us nothing more, however, in the history that would cause us to presume otherwise. The connection of this existing colitis with the terminal picture will be considered later in the discussion. The blood and urine chemistry give us very little information except perhaps to denote a passive nephritis, not primarily in the picture, and a leukocytosis with suggestive secondary anemia. The spinal fluid was perhaps the most interesting finding in the entire history. We made an exhaustive search of the literature in an endeavor to find what type of brain pathology would present such a picture of discrepancy. I refer to the reported findings that the spinal fluid showed 350 leukocytes with normal dynamics and normal chemistry. We must, however, presume that no error was made and that a meningitis existed. You will recall I mentioned that we were interested in the possibility of an embolus from a damaged heart valve but later ruled this out. We are now concerned with a possible septic embolus in the brain to account for the spinal fluid findings and we believe we can demonstrate the source of the embolus in the abdomen, probably from a mesenteric vessel, associated with either a ruptured duodenal or gastric ulcer, or an acute hemorrhagic pancreatitis. The possibility of these two conditions co-existing, or existing separately, will be the basis for the differential diagnosis to be continued by my colleagues.

(Dr. Allen)

Dr. Malone has stated the outstanding symptoms in this case: severe epigastric pain, vomiting of a cupful of brownish-red blood and the passage of blood and bile in the stools. In addition we have a very fulminating condition which caused marked prostration with death in four days from the inception of the illness. The temperature indicates infection. The blood picture may be due either to a septicemic process or it may be due to an acute blood loss from hemorrhage. Immediately following a hemorrhage, there is a polymorphonuclear leukocytosis, which may be as high as 40,000. My colleague, Dr. Malone, has considered conditions outside the digestive tract which might account for the symptoms presented here. We believe the epigastric pain, vomiting of blood and passage of blood in stools indicate that the cause of this condition is in the digestive tract. There is a history of colitis which could cause trouble by infecting other parts of the digestive apparatus. In addition, there is a draining fistula over the appendix which could also cause

it. Among conditions which should be considered are pyelophlebitis, cholecystitis, mesenteric embolism or thrombosis, ruptured gastric or duodenal ulcer and acute hemorrhagic pancreatitis. Cholecystitis could cause the epigastric pain but there should be some enlargement over gall bladder. There is no icterus or muddiness of the skin and the stools show the presence of bile. In addition there is no rigidity in right upper quadrant and the fulminating type of illness which we have here is not usually associated with gall bladder disease with so few localizing symptoms.

Pylephlebitis could account for the fever, leucocytosis and marked prostration but not for the bloody vomit and blood in stools and it is believed the pain would be generalized instead of being limited to the epigastrium.

A mesenteric embolism or thrombosis, especially one involving the superior mesenteric artery could cause the pain, bloody stools and prostration. However, in thrombosis and embolism the vomiting is usually only blood-stained, the temperature as a rule is subnormal and we have at first an obstinate constipation, later followed by a bloody diarrhea. In this case we have an elevated temperature and have no history either of constipation or diarrhea.

We now come to the last two conditions above mentioned—a ruptured gastric or duodenal ulcer and an acute hemorrhagic pancreatitis. We believe that either one of these conditions or both of them could account for the pain, generalized tenderness, extreme prostration, bloody vomit, bloody stools, the blood picture and elevated temperature. My colleague, Dr. Benedict, will discuss in detail these two conditions. Our diagnosis is:

1. Acute hemorrhagic pancreatitis.
2. Ruptured gastric or duodenal ulcer.

A general peritonitis complicated either one or both of these conditions.

(Dr. Benedict.)

Group I has unanimously agreed upon one thing—it is very hazardous to make a positive diagnosis in this case. It will converge upon acute hemorrhagic pancreatitis or ruptured gastric or duodenal ulcer, with a leaning in favor of pancreatitis. In order to save time, I have drawn upon the board a diagram of the anatomy of the region of the pancreas, and a classification of the causes of hemorrhagic pancreatitis, the first by Tice and the second by Speese. You will notice that Tice gives first place to enterogenous, and Speese to lymphatic. To quote E. O. Rosenow, "In infections of

bones, joints and endocardium, the infection travels through the blood; in other words, hematogenous. In infections of those organs that communicate with the surface of the body, such as the stomach, gall bladder, pancreas, etc., these infections come very often from the intestinal tract or ducts leading into it." And in connection with infections of the intestinal tract, the bacillus coli is not the usual offender in acute conditions but is common in such a chronic condition as our case had. The fact that the infection would have to travel some distance from the appendix or colon, or wherever this colitis supposedly was located, to reach the pancreas, rather argues against such a source of infection. In regard to the lymphatics, Sudler has done some very extensive work, tracing the lymphatics of the digestive tract, and in 1911, Frank, working independently, positively established the communication existing between the lymphatics supplying the gall bladder and pancreas. Also that it is not impossible for infection in the gall bladder to back up into the pancreas through the duct of Wirsung. The common bile duct empties into the duct of Wirsung before entering the duodenum, which entrance is usually by one opening. Acute infections by way of the lymphatics are very rare, but chronic infections are common. In regard to infection by way of the ducts, there is this to prevent it—the pancreatic secretion is bactericidal in power, and just at the point of emptying are folds of mucous membrane that mechanically protect the opening from infectious organisms. Archibald says he has produced acute hemorrhagic pancreatitis by introducing into the gall bladder of cats a culture of bile, or bile salts, incubated for various lengths of time with bacteria, and by forcing this to enter the pancreatic duct by spasm of the sphincter, owing to sudden rise of pressure in the gall bladder or to application of hydrochloric acid to the mucous membrane of the duodenum. Mann, in Mayo's Clinic, speaks of vomiting and retching as a means of spreading infection through the duct of Wirsung into the pancreas. He says vomiting and retching will raise intraduct pressure 1000 m.m. bile, which would account for some infections travelling up the duct and producing a pancreatitis. Regarding the existence of chronic cholecystitis with acute pancreatitis,—the common bile duct passes down behind the pancreas in a depression in its posterior surface, thus offering a good chance for spread of infection in case of infected bile. E. S. Judd reported 1200 cases operated for cholecystitis

in which 26.8 per cent had pancreatitis. In regard to hematogenous source, it may occur in chronic but seldom in acute infections; in acute infections such as typhoid, influenza or mumps it occurs once in a while; but it does occur in furunculosis, abscesses and appendicitis, forming a part of the general systemic infection or septicemia. In perforating gastric or duodenal ulcer, the infected material is in close contact with the pancreas, thus affording an opportunity for infection. The symptoms point towards pancreatitis as a preference to perforating gastric or duodenal ulcer. Tice says the patient may vomit blood only once in hemorrhagic pancreatitis, as did our patient; blood may be discharged into the duodenum directly from the pancreas, and be regurgitated. Epigastric pain might be due to another condition. The acetonuria is peculiarly significant of pancreatitis. Prostration is present and always terminates in sudden death.

Our diagnosis—preference of acute hemorrhagic pancreatitis or perforating gastric or duodenal ulcer, favoring the former; cholecystitis not entering into the picture to any great extent; a colitis, and apparently a peritonitis.

Yuma County Medical Society (Ariz.) Diagnostic Conclusions. Meeting of Oct. 9th).

Dr. Ketcherside:- Amebic Dysentery.
Dr. Shields:- Acute Miliary Tuberculosis.
Dr. Cain:- Perforating Ulcer of Stomach.
Dr. Reese:- Bichloride of Mercury Poisoning.

Discussions at Massachusetts General Hospital

RICHARD C. CABOT, M.D.

It is rare to have thyroidectomy at twelve, but we have to take the statement as given.

The remark about appendicostomy and colitis is surprising. In the first place one does not expect to see a person who has colitis so severe that appendicostomy is done recover as this person seems to have recovered. In the second place it is spoken of later as mucous colitis. This makes me suspect that is what it was in the beginning. If so, appendicostomy was the worst thing they could have done.

There ought to be more detail on the spinal fluid. We do not often get normal chemical contents with 350 leukocytes. I should think that fact of the leukocytes the most important fact that we have.

The complaint with which she came, abdominal pain and vomiting of reddish brown fluid supposed to be blood, does not easily associate itself with the final symptoms, especially with the lumbar puncture fluid. Knowing that she had had an appendicostomy we wonder if that and the adhesions might possibly have some connection with the abdominal symptoms; but I do not think the evidence is good. An appendicostomy ought to leave very little in the way of adhesions. In the second place her symptoms do not seem to be par-

ticularly in that region. There is nothing said about abdominal spasm. The abdomen is distended, tympanitic and tender. She has nervous symptoms, semi-delirium and coma. I should say the best explanation is general infection in which the nervous system took part and which showed itself with digestive symptoms in the beginning, rather than to say that local abdominal disease was the main cause of her death. Of course it is perfectly possible that she had a general peritonitis and that the meningeal irritation or meningitis is secondary to that.

The count of red cells looks as if this illness had been going on more than forty-eight hours, for it does not seem probable that she had vomited enough blood to cause that anemia, and there is nothing else to explain it. But what illness she may have had for more than forty-eight hours I have no idea. We have no evidence, I should say, of any chronic nephritis, although we do not know the gravity of the urine.

DR. RICHARD B. KING: It was perfectly normal.

DR. W. PEARCE COUES: Do you think she could have taken some poison a few days before admission to the hospital in a suicidal attempt?

DR. CABOT: That would have caused her vomiting, but I do not see how we can easily link that up with the condition of the lumbar fluid or with the anemia. I do not know any poison that will cause such an anemia in two days. There is not any evidence of jaundice or anything like acute liver trouble. I do not see how we can say she has tuberculosis in any form or syphilis in any form.

A PHYSICIAN: Can it be endocarditis?

DR. CABOT: The history must be very defective if that is true.

A PHYSICIAN: She has a systolic murmur.

DR. CABOT: Apparently she was sick only forty-eight hours. If she had had endocarditis I should have been satisfied to explain the abdominal symptoms in that way; but I should say that we have no good basis for a diagnosis of endocarditis in any form.

A PHYSICIAN: How do you explain the bloody vomits and bloody stool?

DR. CABOT: We see a great many critically ill patients, especially on the surgical side, vomit reddish brown fluid. This happens in peritonitis often, but also in a great many cases in which we never find a cause. The stool examination showed gross blood, but we do not know as to the question of hemorrhoids. We have no rectal examination. She is said to have had a colitis, not however of the type that ordinarily shows gross blood. Possibly her anemia is due to old colitis. If she has lived here that colitis was probably not of the type likely to spread beyond the intestine. I do not believe that I can make a diagnosis.

DR. KING: She had a perfectly normal blood sugar and her CO₂ tension was about 40 volumes per cent. I saw her about twelve hours after she became comatose and thought she might be in diabetic coma because of the tremendous hyperpnea which she was said to have had for some hours.

DR. CABOT: You do not know any more about that leukocyte count in the spinal fluid, do you?

DR. KING: No sir.

DR. CABOT: That is the most definite fact we have. If only we had a little bit more!

DR. TRACY B. MALLORY: There must have been a high percentage of polymorphonuclears.

DR. CABOT: What makes you think that?

DR. MALLORY: From our examination of the spinal fluid post mortem.

DR. CABOT: Let us say then that they are polymorphonuclears. That means acute meningitis. Is that all there is? No, because acute meningitis does not cause anemia, and she has it. I think we must say some form of acute meningitis. Beyond that my only guess is that there is also some form of sepsis, local or general.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Acute miliary tuberculosis.
Tuberculosis peritonitis.

DR. RICHARD CABOT'S DIAGNOSIS.

Acute meningitis.
Sepsis, local or general.

ANATOMIC DIAGNOSES

1. *Primary fatal lesions.*
Septicemia, staphylococcus aureus.
Staphylococcus meningitis.
Miliary abscesses in heart, spleen and kidney.
2. *Secondary or terminal lesions.*
Chronic colitis.
Focal necrosis of the adrenals.

DR. MALLORY: The primary diagnosis was septicemia with staphylococcus aureus. It showed up in the blood culture. Numerous miliary abscesses were found in the spleen, heart and kidneys. The lungs contained an old infarct which must have been due to a much older process than this. No source or suggestion as to where it might have come from was found. The brain showed a definite purulent meningitis also due to the staphylococcus aureus. She did have a true chronic colitis without any gross ulcers but with very marked thickening of the wall of the sigmoid colon and a typical cellular infiltration which extended down through the mucosa and muscularis into the serosa. No source for the sepsis was found. Whether it was possibly an extension from the colitis, I cannot say. It hardly seems likely.

DR. CABOT: Is the organism of this form of colitis known, in your opinion?

DR. MALLORY: Not certainly. From a very considerable proportion of them we can recover streptococci, usually of the viridans type. A special diplococcus has been found in many cases by Barben of the Mayo clinic and he has also had very favorable results from specific vaccine therapy. I do not feel, however, that the etiology can be considered settled.

DR. CABOT: Do you take it the colitis is the cause of the anemia?

DR. MALLORY: The sepsis may have persisted very much longer than the history suggests. The kidney showed not only acute miliary abscesses situated around infectious thrombi in small blood vessels, but all stages of healing abscesses and all stages of septic infarcts. So that I think the process must have lasted several weeks without much question.

A QUESTION OF UREMIA

(Cabot's Case No. 14121. New Eng. Jour. of Med. May 17, 1928, p. 693).

Below will be found the discussions of selected teams from the Yavapai County Medical Society and Medical Officers of U. S. Veterans' Hospital at Whipple, Ariz., at their meeting on October 16th; discussions of the Maricopa County Medical Society at their meeting of October 15th.

For the case history see the September issue of this journal, page 414.

Discussions by Yavapai County Medical Society and Medical Officers of Fort Whipple, Group III.

DR. I. D. LOEWY, Whipple, Ariz.

DR. B. L. JONES, Whipple, Ariz.

DR. E. A. GATTERDAM, Whipple, Ariz.

(Dr. Loewy)

This case presents the characteristic history of an emergency case; the patient lived only five or six days. There is a sparsity of history and practically nothing but objective symptoms. The laboratory findings are rather scanty. Our attention is invited to the kidneys, heart and brain. The preponderance of symptoms found upon examination points to some condition in the brain. The kidneys are involved as shown in the urine examination—a trace of albumin, rare hyaline casts and much pus; it does not tell whether it was a catheterized specimen, or where the pus came from, whether from urethra, bladder, ureter or kidney. There was evidently a low grade nephritis, which may not have any bearing on the diagnosis. The heart is dilated, transverse diameter widened, with mitral regurgitation, a systolic murmur transmitted to axilla, which perhaps would give us a diagnosis of endocarditis. The most prominent symptoms are referable to the nervous system and especially referable to the right side of the brain. We have transient convergence, which shows irritation of the base, smoothing out of left side, ptosis of left eyelid; all point to lesion in the right side of brain. Left knee jerk absent and right impaired. In a later examination she does not use right corner of mouth, which suggests left side instead of right, but we believe the major condition affects the right side. A study of the spinal fluid was made but very meager details are given, the chemistry is entirely missing; the fluid was under considerable pressure, cloudy and of pinkish colour; microscopic examination showed red cells, rare mononuclears and very rare polynuclears. We looked up all authorities on spinal fluid and the presence of red cells in spinal fluid was not considered characteristic, a great deal more stress being laid on the chemistry and white cells, but we believe there was not sufficient number to be considered pathological. Something increased the endocranial tension to the point that it shows effect on the spinal fluid. In addition to that the history states on two examinations, the right eyeball was more prominent than the other; there is increased endocranial tension encroaching upon the orbit, pushing the eyeball forward; there is no tumor mass

mentioned to account for the prominence of the right eyeball.

The differential diagnosis will be taken up by Dr. Jones.

(Dr. Jones).

In considering this case we must look at the question of the nervous system and the question of the cardio-vascular system, including the kidneys. There is a scarcity of laboratory findings. Taking up first the question of spinal fluid in this case, the history states that the fluid was pinkish, had increased number of red cells and that it was under pressure. Considering the case from the spinal fluid standpoint, we depend entirely upon the relation of that fluid to the physical findings, and in this case we must take up the question of brain tumor, brain abscess, meningitis, hemorrhagic encephalitis, apoplexy, which includes thrombosis, hemorrhage following ruptured embolism of the basal arteries, embolism which may come from this heart condition, and further a degeneration of arteries following a heart that shows degeneration. Considering first brain tumor, we do not think the physicians and surgeons in this case would have attempted to do a spinal puncture if they had the least idea of brain tumor, because of the danger of pressing down of the medulla, squeezing parts of the cerebellum and causing sudden death; further, this condition came on quite suddenly. We expect papillitis, projectile vomiting and severe headaches in brain tumor, and more neurological symptoms than we have in this case. Next considering brain abscess—a negative fluid would not necessarily help, it would depend upon whether that abscess had broken through and gotten into the ventricles, when there might possibly have been pus in the spinal fluid. Meningitis—we believe there was some meningeal irritation, but the spinal fluid was negative for organisms, negative for lymphocytes, for leukocytes and for increased amount of globulin; the lungs were negative, which would rule out tuberculous meningitis. We believe there was some brain irritation, but do not believe it was due to tumor, abscess, meningitis or hemorrhagic encephalitis. There was no marked fever, and the pulse was at times increased and at others slower. Blood in the spinal fluid—in cases of fracture of the base of skull, if it involves the arachnoid, it is fairly common. One method of determining the duration of this blood is by centrifugalization; if there is no hemolysis shown, it is attributed to recent hemorrhage and not to one of long duration. Cardiac condition—definitely enlarged heart, dilatation, arrhythmia; the

history states there is marked tension, and still give us a blood pressure of 120, which does not help much; this may be an extremis. There is no definite history to point to sub-acute bacterial endocarditis; it does say there has been cardiac damage as shown by the dilation, transmitted murmur to axilla and the arrhythmia; that may be an old endocarditis and not necessarily an acute condition. There is no history of rheumatic fever. There is a possibility of embolus broken from the heart valves, lodging in the brain, setting up inflammation and giving us these symptoms of paralysis of the face and eye symptoms, involving the third, fourth and sixth nerves. Along with the cardiac condition there are some renal symptoms; casts and albumin. We know there is, along with degeneration of the heart, degeneration of the arteries; there is the possibility of one of the arteries at the base of the brain becoming ruptured and the hemorrhage involving the third and fourth nerves and especially the nerve of the eye, giving us the strabismus, and possibly catching the facial nerves giving the paralysis of that side of the face. With regard to the absence of reflexes, this was definitely a terminal condition. We have eliminated tumor of the brain. We have a woman who has lost nine children; her husband showed no signs of syphilis; the eye symptoms, partial loss of light reflex, show a possibility of syphilitic contamination, but there is no positive Wassermann; she may have had syphilis and still die of some other condition, although this may cause hemorrhage and death.

Our differential diagnosis would be cardiac and renal disease with degeneration of the arteries, possible hemorrhage causing wet brain, which caused her death, hypertrophy and dilation of heart and mitral regurgitation.

(Dr. Gatterdam)

This case suggests infection. In handling this type of case in private practice an attempt at a diagnosis should always be made so that some sort of rational treatment may be given. The results of treatment or the autopsy findings will tell us if we were correct. Blood in the spinal fluid is interesting. It could have been caused by an injury to a blood vessel. Usually when we get small amounts of blood in the first fluid we say it is due to puncturing a blood vessel in doing the spinal puncture. Two other conditions that would cause it are skull fracture and a basal meningitis. Skull fracture should be thought of as we are apt to meet cases like this in emergency work. I had one case of a basal ful-

minating meningitis in which blood was obtained in the spinal fluid. This case was brought into the emergency hospital at 3 a. m. by a policeman. He complained of very severe headache. The policeman had found him on the street. The patient stated that his headache had started that afternoon and he had seen two physicians regarding it. One had told him he had a lumbago and the other said it was hysteria. On physical examination there was rigidity of the neck and positive Kernig; urine examination at this time showed a very large amount of albumin; blood count 23,000, and blood pressure 160/95; pulse full and fairly slow; spinal fluid contained much blood, so a culture or smear was not made. The patient lived eight hours after being admitted and autopsy showed an extensive basal epidemic meningitis.

In the case here discussed, physical findings point to three places. The heart, the kidneys, and the brain. From the heart examination it is quite probable that an endocarditis has existed. In other words there has been a previous heart injury, which predisposes to added infection or a subacute bacterial endocarditis, or endocarditis lenta. With this condition emboli occur which may cause infarction into the brain, kidneys, lungs, spleen, skin and other organs. The pus in the urine points to a pyelitis. This may be from infarction in the kidney from a cardiac embolism. Or this pyelitis may be primary and have caused an ulcerative endocarditis. Sudden death in this case points to a thrombosis or embolism of the coronary vessels. The drop in pulse from 120 to 60 may be due to a pulsus alternans and only every alternate beat counted, or due to cerebral pressure. It would also be accounted for by a partial heart block.

Turning to the neurological findings of partial paralysis one would suspect a cardiac embolism lodging in the brain. The paralysis seems to be first on the left side of the face and then on the right. It was not a true paralysis. In locating the lesion it appears to be in the vessels or tissues in the base of the brain. We do not look for emboli in this region but rather thrombosis of the greater veins, or sinuses. It is quite possible that thrombosis did occur, the infection originating from the heart. One physical sign here gives us the location, and that sign is bulging of the right eye. Headaches, partial paralysis, temperature, bulging of the right eye with no changes in the optic disc point to a thrombosis of the cavernous sinus on the right side. Our diagnosis is septicemia, subacute bacterial endo-

carditis, thrombosis of the right cavernous sinus, pyelitis.

Discussions by Maricopa County Medical Society, Phoenix, Ariz.

DR. F. C. JORDAN, Phoenix.
DR. M. E. WILSON, Phoenix.

(Dr. Jordan)

I will discuss the pathological conditions which we must exclude before making our diagnosis.

We have an Italian woman, age 42, brought to the hospital with a diagnosis of uremia. The diagnosis of uremia is quite frequently made with symptoms like these, and a great many times the diagnosis is wrong. Cabot says the diagnosis is always wrong where there is no past history of the ordinary symptoms of nephritis. The negative urinary findings and the low blood pressure are sufficient to rule out uremia.

Encephalitis must be considered. In this condition, the symptoms usually appear acutely, with a sudden rise of temperature, chills and headache. It may commence with convulsions, an apoplectic state, or progressive somnolence. The eye symptoms and palsies are not unlike those found in this case. Death may take place in the severe cases in a very short time. The spinal fluid contents in encephalitis are usually characteristic; the fluid is clear, under slight increase of pressure, a very moderate number of cells which are nearly all lymphocytes. The symptoms of encephalitis are so varied that it can simulate almost any kind of brain lesion, yet we feel that the spinal fluid findings in this case would definitely exclude encephalitis.

In septic meningitis, a positive Kernig and rigid neck are practically always present. In all except the tuberculous form, the spinal fluid is cloudy and contains many cells with a large percentage of polymorphonuclear forms. The absence of these symptoms and the difference in the spinal fluid contents would be sufficient to exclude the different forms of meningitis.

In serous meningitis, which is usually secondary to some infectious disease, epilepsy or uremia, the spinal fluid is under pressure but the cell count is normal.

Trauma with subdural hemorrhage must be considered, since the spinal fluid findings may be identical with those found here. The absence of any known previous injury would be against this diagnosis, although there are authentic cases where the symptoms did not appear for a period of two years after the injury. Also the focal symp-

toms would be hard to explain on the basis of a hematoma caused by an outside injury.

The urinary findings were practically negative with the exception of large amounts of pus. This would indicate the presence of some inflammatory condition along the urinary tract. Cystitis, pyelitis, pyonephrosis and tuberculous kidney, are the most common causes of pus in the urine. We believe that this condition is entirely independent and has no relation to the immediate cause of death.

The blood and spinal fluid Wassermann, also the leucocyte count and blood chemistry would aid in the diagnosis. The finding of a bloody spinal fluid under tension in both punctures should rule out accidental hemorrhage caused by the needle.

We believe this blood in the spinal fluid came from the cranial cavity. My colleagues in this discussion will discuss the circulatory system and the brain.

(Dr. Wilson)

The men discussing this case are pretty well united in the opinion that the immediate cause of death was intracranial. The cardiovascular aspects of the case were studied mainly from the standpoint of etiology and in an effort to correlate the cardiovascular pathology with that suspected to exist in the brain or meninges.

The history points to one of two factors as causing the heart condition. She may have had a rheumatic heart or it may be affected by syphilis. The heart is very definitely enlarged in the transverse diameter: 11 c.m. to left of midsternum against a normal 7 or 8 c.m. There is a systolic murmur at the apex transmitted to the axilla, sounds of poor quality and an irregular pulse. These findings could indicate a rheumatic infection. The arrhythmia could be due to auricular fibrillation or to impairment of the conduction system. The pulse rate is given in the inverse order 120-61. This may mean a varying rate due to arrhythmia or a decreasing rate due to intracranial pressure. There is no history of previous rheumatic symptoms, if we except the record of ten days fever two years previous to this illness. This could have been a tonsillar infection or a recurrence of a forgotten illness. We know that rheumatic symptoms may be light and the endocarditis following, nevertheless, severe. Given the possibility of an endocarditis, it could occur that upon the basis of an old simple endocarditis a purulent infectious process is engrafted (a case of this kind was recently reported to this society). As a possible origin for pus organisms, the history shows the urine to contain much pus indicating a focus in

the kidney or urinary passages. Infected emboli carried to the brain would explain the signs and symptoms if these were due to abscess or purulent meningitis. If some other origin for the infecting organisms could be found, it would be more reasonable to explain both the kidney and brain foci as being due to infected emboli from the heart, especially as the blood from the kidney goes through the lung capillaries before reaching the brain.

Another possibility that must be considered is that all the cardiac signs are due to syphilis. The history of nine dead children out of eleven stands out too prominently to be ignored. There is the suggestion of infection in the husband. If syphilis exists, it has been over a long period and without treatment. Cardiovascular and meningeal syphilis are symptoms of the later stages and come on five to twenty years after infection. The accentuated second aortic sound is quite characteristic and is usually sharp and metallic. The fact, that although the other sounds are poor and the blood pressure only 120, the accentuation exists, speaks for an aortitis. Arrhythmia without symptoms of decompensation looks more like a lesion of the conduction fibers than auricular fibrillation. If the cardiac symptoms are luetic in origin it is probable that the brain lesion is also, the brain lesion being a meningeal syphilis, gumma, or an endarteritis.

The focal symptoms and nerve involvement point to the base of the brain and a broken down gumma or a ruptured small aneurismal dilatation would explain some of the symptoms, especially the blood in the spinal fluid.

The systolic pressure is only 120. Of course this may have previously been higher, and lower at present because of myocardial failure. A myocarditis would explain the mitral murmur if this is not caused by rheumatic endocarditis. A previous hypertension could be the cause of apoplexy; the few hyaline casts lends a little to this consideration, but on the whole, we do not think that the condition was due to apoplexy from hypertension.

A remote possibility, in view of the blood in the spinal fluid, is that myelogenous leukemia could be a factor. There is no corroborating evidence. no purpura, no enlarged spleen, no blood findings.

By process of exclusion, we narrowed the probabilities down to abscess, some syphilitic manifestation at the base—or something else. Dr. Robb will tell you which it is.

(Dr. Robb)

The patient was thought to be uremic.

She had had headache and dimness of vision two weeks before entering the hospital. If this had been a case of uremia she would have had hemorrhages or signs of previous hemorrhages in the retina. The headaches could be caused by uremia, gastro-intestinal disturbances, ovarian diseases, apoplexy, brain tumor, brain abscess, syphilis, meningitis, chemical poisoning and many other things. There is nothing in the history to indicate that the headaches came from gastro-intestinal disturbances, ovarian disease, or chemical poisoning. Therefore it must be something inside the cranial cavity that caused it.

The loss of motion of the left side of the face, ptosis of the left upper lid and internal strabismus were, of course, caused by paresis of the seventh, third and sixth left cranial nerves.

Two years ago she was in bed with a fever. We might argue that she had a mastoiditis at that time causing pressure on the seventh cranial nerve as it passed through the fallopian canal, but there is no history of her having had any ear disease, such as suppurative otitis media. Besides, if the paresis of that nerve was caused by supuration or pressure on the nerve as it passes through the mastoid bone, she would not have had paresis of the third and sixth cranial nerves. Therefore, the disturbance must be near the origin of the nerves.

Regarding the enlargement of the cervical glands; since the history does not state whether it was the superficial or deep chain and since there was no infection on the face or scalp we conclude that it must be the deep chain. This is of little help to us because we can have enlargement of the deep cervical glands from infections in the naso-pharynx, tonsils, meninges or brain substance.

We do not believe the headache and dimness of vision came from syphilis because if chronic syphilis had been present the eye grounds would have shown arteriosclerosis, probably chorio-retinitis and fine vitreous opacities. The history says that the fundi were normal.

As the headaches were of short duration and there is no history of vomiting and no choked disc we can eliminate brain tumors, with the exception of gliomata. Gliomata are such soft tumors that they can cause a great deal of destruction of the brain substance without causing pressure symptoms. The walls of the blood vessels in them are very thin and many times rupture, causing a hemorrhage at that place. We could in this way, account for the blood in the spinal fluid.

Since she had enlargement of the heart and possibly aortic disease, thrombosis of the longitudinal sinus might be thought of. This could explain the blood in the spinal fluid, for in such cases we have the brain bathed more or less with blood.

There are three causes for hemorrhage into the brain and spinal cord; trauma, extensive burns and diseased blood vessels. We have no history of trauma or burns. The blood in the spinal fluid could be caused by a prodromal or meningeal apoplexy and since she had no high blood pressure or arteriosclerosis in the fundi we do not believe this was apoplexy.

The low pulse of sixty-one, the temperature range, constant headache and stupor of the patient would suggest brain abscess.

Since she was very noisy, unreasonable and had rigidity of the neck, this would suggest meningitis in some degree.

Therefore we believe this woman had brain abscess near enough to the meninges to cause an erosion of the blood vessels which ruptured into the fourth ventricle and this caused pressure on the nuclei of the third, sixth and seventh cranial nerves and also on the direct pyramidal tract. This could explain the blood in the spinal fluid, the paresis of these nerves and the loss of the left knee jerk.

Discussion at Massachusetts General Hospital.

By RICHARD C. CABOT, M. D.

We should like to know whether her husband's pupils reacted to light or accommodation. We cannot say much otherwise.

The pulse tension was not high. In the old days we thought we were very skilful with our fingers, had the "tactus eruditus", the educated touch; but when we came to compare our guesses with the true measurements we found ourselves often very wrong.

We have not much evidence against that heart so far as I can see. We do not know that it is enlarged. We have the systolic murmur that we get in so many conditions without heart disease. I cannot say anything in particular on the basis of those facts.

They do not say anything about the muscular condition outside the face.

I do not see how we can say uremia on the basis of that urine.

40 cubic centimeters of spinal fluid is a great deal. 10 to 15 is what we get. usually.

DIFFERENTIAL DIAGNOSIS

This is a blind case. We have to say brain disease; but what disease? This is not the lumbar fluid of meningitis. If the report is right she has not meningitis. It is consistent with brain tumor or with cerebral hemorrhage. The normal fundi are strongly against tumor, that is strongly against death from tumor. If it is cerebral hemorrhage where is it? I do not know. The little that we have seems to point to the right side of the brain, but not strongly. "Hemorrhage" means some vascular lesion. We always ought to say that. Embolism, thrombosis or softening would give the same evidence. It is just as likely that this is softening as that it is hemorrhage. The presence of

blood in the spinal fluid is the most troublesome thing. That seems more like hemorrhage than anything else. I should say cerebral hemorrhage, and I suppose it is on the right side of the brain. It might be in the ventricle or in the base.

A Student: What about lues?

Dr. Cabot: I think it is quite possible that lues is behind the picture. There is no conclusive evidence. Lues can go very well with the poorly reacting pupils. The condition of the knee-jerks in a person in her state does not mean anything.

A Student: What about cranial nerve paralysis? Dr. Cabot: We have no good evidence of cranial nerve paralysis. It was suspected by one person. The mental symptoms are not characteristic. I do not know enough about the date of this case to know that it was not before the day of encephalitis. But I do not believe there was any encephalitis at that time. That is of course not quite a fair argument on the basis of the clinical facts.

A Student: What do you think of the increased pressure?

Dr. Cabot: We get increased pressure in cerebral hemorrhage or edema, sometimes in tumor, and sometimes with meningitis, especially "serous" meningitis.

Dr. Tracy B. Mallory: Did you make anything of the conjunctiva and convergence of the right eye, Dr. Cabot?

Dr. Cabot: I suppose I ought to, but I do not know what.

A Student: Nine children out of eleven are dead.

Dr. Cabot: That makes one think of syphilis, but it does not prove it. There are many other causes for the deaths of young children.

A Student: Are there not enough cells for meningitis?

Dr. Cabot: We ought to find more white cells.

CLINICAL DIAGNOSIS (From Hospital Record)

Cerebral syphilis?

Brain tumor?

DR. RICHARD C. CABOT'S DIAGNOSIS

Hemorrhage into the right side of the brain.

ANATOMIC DIAGNOSES

1. Primary fatal lesions.

Thrombosis of the great venous sinuses of the cranium and of certain radicles of the superior longitudinal sinus and of the first portion of the right ophthalmic vein and the first portions of the jugular veins.

2. Secondary or terminal lesions.

Infarcts of the left lung.

Edema of the scalp.

Small hemorrhagic areas in the right cerebellar and right cerebral hemispheres.

Hyperplasia of the spleen.

Infarct of the spleen.

DR. MALLORY: From the anatomic findings it is very difficult to believe that there was not more variety in the symptoms which the patient presented. The chief finding was thrombosis of the right cavernous sinus extending backward through the longitudinal to both jugular sinuses down the right jugular vein. From the inferior end of that thrombosis an embolus split off, causing numerous pulmonary infarcts and also an infarct of the spleen. There were no other findings of any note. Nothing was discovered to suggest syphilis at all. The only culture made was from the spleen, unfortunately not from the thrombosis mass, and it showed no growth.

DR. CABOT: Is there nothing to show what made this thrombosis occur?

DR. MALLORY: I suspect that there must have been infection of the right orbit, although the orbit plate was not removed, so that we have no definite proof of that. The ethmoidal and frontal sinuses were negative, ruling out the other ordinary sources of cavernous sinus thrombosis.

DIAGNOSTIC FORUM

Based on the Cabot Case Histories selected and studied by the Yavapai County Medical Society and the Medical Officers of U. S. Veterans Hospital at Whipple, Arizona.

Any medical society or hospital staff in the southwest is invited to discuss these cases and submit their discussions or diagnostic conclusions for publication in this journal, along with those of the Yavapai County group.

CASES FOR YAVAPAI COUNTY MEETING OF DECEMBER 11th.

First Case:—Group 1.

An unmarried Irish-American woman sixty-seven years old entered the hospital March 17 in coma. The history is limited to a few facts obtained from a brother who did not live with her and from a nurse who brought her in.

For a year or more she had had attacks of dyspnea on exertion and her activity had been limited more or less. A week before admission she became rather suddenly ill with what seemed to be a respiratory infection. She had been in bed. The day before admission she seemed better. The day of admission she became very much worse. Halfway to the hospital she went into coma. There was no definite knowledge of medication except that her doctor gave her two pills containing digitalis early the evening of admission, and that before starting for the hospital she was given a quarter grain of morphia.

Clinical examination showed a woman obviously moribund lying propped up, comatose, breathing with great difficulty. Only a very cursory examination was done. Face and hands intensely cyanotic. Hands clammy. Profuse perspiration. Lungs examined only superficially over the front. In the upper right chest to the level of the fourth rib dullness, bronchovesicular breathing and many moist rales. Apex impulse of the heart not seen or felt. Left border of dullness 11 centimeters to the left of midsternum; fairly marked enlargement to the left. Rate rapid. Action regular. Sounds of fair quality, not muffled. At the apex a to-and-fro murmur, apparently a rub. Sounds at the base obscured by respiration. Pulses weak and thready. Artery walls not palpable. Blood pressure 100/60 to 130/100. Abdomen large, soft, tympanitic. Questionable liver edge palpable. (Nothing felt but a vague resistance.) Extremities cold. No edema. Pupils and knee-jerks normal.

No laboratory work was done.

Temperature 104.9°, rectal. Pulse 140. Respirations 40.

The patient was given caffeine and adrenalin and propped up with her head high. Her color became better and her hands and feet warm. At ten o'clock in the evening she was given three grains of digitalin intramuscularly. This was repeated at 11 p.m. and at midnight. Her pulse slowed slightly and became stronger, and she seemed to recognize her brother. Caffein was repeated at 11 p.m. and 1 a.m. The blood pressure fell slightly and the pulse came down to 120 at one o'clock. A little over an hour later her respirations suddenly stopped. Her heart continued to beat for a few moments.

Second Case:—Group 3.

An American schoolgirl twelve years old was brought to the Emergency Ward October 22 in ex-

treme prostration. The history was given by her parents, who were strikingly unable to answer any questions leading to a diagnosis.

Since October 17 she had not felt well, and on October 19 she stopped school. Her only complaints during the illness were lassitude, slight morning cough, loss of appetite and mild pain between the shoulders. She was thought to have been feverish for two or three days. October 21 it was noticed that her breathing was labored and rattling and that she was becoming cyanotic. That night the physician said her temperature was about 102°.

There was no history of operation, sinus, throat or dental symptoms, foreign body aspiration, marked headache, vomiting, mental disturbance, chills, sweats, hemoptysis, bleeding, severe pain or sore joints.

Physical examination was cursory because of her condition. It showed a cyanotic girl in semistupor, with prolonged expiratory rattle and irregular inspiratory gasps with clicking of the teeth. The throat was negative except for frothy exudate through which she breathed. There was no membrane. There was no tenderness over the sinuses. The chest was resonant throughout. The breath sounds were obscured by loud coarse moist rales of extreme pulmonary edema. Tactile fremitus and whispered and spoken voice were not elicited. The heart was negative except for a rate of 160 to 180. The pulse at first was of fair quality, better than her appearance indicated. The abdomen and extremities were negative except for cyanosis.

The temperature and respiratory rate are not recorded.

She was put upon the dangerous list immediately, and was given atropin, nitroglycerin, adrenalin, caffeine and digitalis. Venesection was attempted. In less than three hours she died.

PERSONALS AND NEWS

DR. JOHN W. STACY, who has been resident physician at the Good Samaritan Hospital in Phoenix, has associated himself with Drs. Ketcherside and Lount of Yuma, with offices in the Yuma National Bank Building.

THE SOUTHWESTERN DENTAL SOCIETY held their annual convention in Tucson October 28 to 31, with a very large and enthusiastic attendance. Their four days of scientific program was enlivened by many social events.

ST. MARY'S HOSPITAL, of Tucson has been given a Class A rating by the American College of Surgeons. This is probably the oldest hospital in Arizona, having been established forty-eight years ago.

DR. MORTON J. KIMBUL, of Phoenix, after spending the summer in the northwest, has returned to Phoenix and reopened his offices in the Security building.

DR. MAYO ROBB, of Phoenix, who took charge of the practice of Dr. D. F. Harbridge during the summer months, has located permanently in Phoenix, being associated with Dr. H. T. Bailey.

DR. GEORGE SHIELDS, of Yuma, has removed to Phoenix and will be associated in practice with Dr. Charles S. Vivian, their practice being confined to urology and surgery.

DR. ROSS MOORE, Wilshire Medical Building, Los Angeles (after January first), has arranged to make available to the medical profession the strain of tertian malaria which he has been using for two years, in the treatment of late syphilis. Those interested in such treatment can secure further data from Dr. Moore at 520 W. Seventh St., Los Angeles, up to the first of January.

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AN UNUSUAL OPPORTUNITY FOR MEDICAL SOCIETIES

One of the great problems of small county medical societies is to secure something interesting for their meetings. The few members are usually busy, they know each other's opinions fairly well, and unless something from outside of their circle comes in to weld them into a unit, they will seldom cohere.

In presenting the idea of an open forum in diagnosis, with interesting cases selected by a group of doctors in Yavapai County, it is hoped that we may stimulate interest in clinical study and clinical discussions. A county medical society of five members or twenty-five members could find opportunity twice a month or once a month to meet for two hours, and discuss clinical problems as presented by actual cases. The advantage of using the cases published in this journal will be that we may compare notes, and that we may learn what others think about the same cases which we have studied.

The Massachusetts General Hospital is taking considerable interest in our attempt to popularize clinical case discussions in Arizona and the southwest. They now offer to send to any hospital staff or medical society records of cases that have not yet been published, together with the necropsy findings. If any society or group in the southwest are interested in such a proposal as this, please write to this journal and arrangements will be made.

AUTOPSY FINDINGS IN DR. J. I. BUTLER

(It was the dying request of Dr. J. I. Butler, of Tucson, Ariz., that a thorough post-mortem examination be made of his body and the results given to the medical profession for whatever value it might have to them.

Dr. Butler first developed symptoms in the left shoulder area about February, 1928. This was in the form of a soreness which inhibited certain movements of the shoulder. After this had persisted for two or three weeks, he made roentgenograms, which showed definite changes in the bone of a destructive type. Consultation with Dr. Ellis Jones, of Los Angeles, developed the almost certain diagnosis of a malignant lesion in the upper humerus. Soon after this the axillary and supraclavicular glands became enlarged and tender. One of these removed for diagnosis showed the structure of sarcoma.

Roentgen and radium therapy, with injections of colloidal lead, failed to check the progress of the disease and Dr. Butler succumbed during the last of June. The following is detailed report of the autopsy findings made by Drs. Brem. Zeiler & Hammack, of Los Angeles.)

Middle aged white male, fairly well developed and nourished. Slight subcutaneous edema of right leg and ankle. In the left supraclavicular space there is a lobulated soft mass and the skin over it presents a surgical scar. There is also an old suprapubic scar. No other subcutaneous lymph nodes palpable.

In the left axillary space there is a large lobulated non-infiltrative soft tumor mass, the cut surface of which is homogeneous and grey white. Encircling the upper third of the left humerus is a tumor mass about 2 cm. thick. The periosteum is completely destroyed. The cortex has a moth-eaten appearance and on the medial surface just below the neck there is an eroded area of the cortex extending into the medullary cavity. The lower portion of the joint capsule is destroyed but the articular surfaces are not involved. Practically the whole of the medullary cavity is filled with soft tumor tissue, the head is almost completely filled with tumor, there being a few bony trabeculae extending through it. There is a pathological fracture at the lower end of the upper third of the humerus.

THORACIC CAVITY

In the superior and anterior mediastinum are several large soft tumor masses averaging about 5 cm. in diameter. In the hilar regions of both lungs

are similar masses, those on the left being larger. Extending along the secondary bronchi there is a sheath like infiltration. Those masses on section are soft and have a homogeneous grey white appearance; the capsules are intact. Sections through the lungs reveal a few scattered small circumscribed masses especially in the left lower lobe. Each cavity contains about 500 cc. of clear fluid. The pericardial sac is slightly enlarged and there is a moderate increase in fluid. In the epicardium on the anterior surface of the right ventricle is a mass about 1 cm. in diameter; the whole of the base of the right auricular appendage is filled with a soft mass. No valvular lesions demonstrable. The heart muscle is pale and flabby.

ABDOMINAL CAVITY

It contains about two liters of pale milky fluid; the liver edge is 6 cm. below the costal margin. The spleen is irregularly shaped and enlarged. There is a large retroperitoneal mass in the left kidney region. Surrounding the celiac axis is an irregularly lobulated mass about 15 cm. in diameter; extending along the splenic artery is an elongated mass and one also in the hilus of the spleen. All the pre-aortic lymph nodes are greatly enlarged and completely filled with tumor. In the left wall of the pelvis there is an irregular lobulated mass behind the peritoneum.

Liver: Moderately enlarged; just beneath the capsule are a few scattered, slightly raised circumscribed tumor nodules averaging .5 cm. in diameter. On section a few similar nodules are seen scattered throughout the parenchyma. Gall bladder and ducts are negative.

Spleen: Is irregularly shaped, the lower pole being enlarged and globular shaped and within it is a globular shaped mass about 8 cm. in diameter. On section this mass is hemorrhagic and friable.

In the upper portion there are several smaller masses.

Pancreas: No tumors within it but extending along the splenic artery are several enlarged lymph nodes.

Left kidney: Completely surrounding it is a mass about 2 cm. thick. The surface of this is smooth and the mass is apparently encapsulated. On section the mass is fairly soft and compact; there is no invasion of the kidney. The tumor surrounds the left ureter in a sheath-like manner throughout its entire extent, the ureter averaging 1.5 cm. in diameter. The wall is thickened and the lumen is small but patent. Sections reveal no masses within the kidney but tumor infiltration extends along the ramifications of the pelvis.

Right kidney: Moderately enlarged, several nodules 1 cm. in diameter beneath the capsule. Section shows several nodules throughout the parenchyma. Right ureter negative.

Urinary bladder: Within the left wall in the region of the ureter is a tumor mass about 1 cm. thick, but this has no connection with the prostate.

Prostate: The middle lobe has been removed, the lateral lobes are hypertrophied but no tumor mass is within it. Just posterior and to the left of the prostate is a mass about 5 cm. in diameter. This is just anterior to the rectum but does not extend into it. All of the deep iliac chain of lymph nodes are greatly enlarged and on section are soft and filled with grey tumor.

Stomach, small and large intestine were negative, Adrenals are negative.

ANATOMICAL SUMMARY

Large, soft and lobulated tumor mass in left axilla.

Tumor surrounding upper third of left humerus.

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A. H. Warner, Ph. D., Physicist

a—Erosion of cortex on medial surface of humerus.
 b—Narrow cavity filled with tumor.
 c—Pathological fracture in lower portion of upper third. Subcutaneous tumor mass in left supra-clavicular space. Large soft tumor mass in superior and anterior mediastina. Numerous tumor nodules around celiac axis and in pre-aortic region.

Two tumor nodules in epicardium of heart. Tumor nodules in spleen, liver and kidneys. Large mass surrounding left kidney and ureter. Tumor nodules in lungs.

MICROSCOPIC

Sections were made from various portions and they all have essentially the same appearance. The tumor is a cellular one with a diffuse growth of small lymphoid cells lying in a fine reticulum. The reticulum is irregularly distributed, being absent in some portions, but in others it is fibrous. Numerous blood vessels extend through the reticulum but these appear to play only a passive part. There are numerous scattered larger round cells of the reticulum type, also multinucleated cells resembling Dorothy Reed cells as well as a few eosinophiles and plasma cells. A rather peculiar feature is the almost complete absence of mitotic figures.

In the spleen and other organs the tumor is sharply circumscribed and is encapsulated.

We feel that this tumor is probably of lymphoid origin and are inclined to consider it as a lymph-sarcoma.

EL PASO COUNTY MEDICAL SOCIETY (Sept. 24, 1928)

The El Paso County Medical Society met September 24, 1928, with twenty-one members and three visitors present.

DR. E. J. CUMMINS reported a case of disloca-

tion of the ankle bones resulting from a fall on the knee. The tendon of the tibialis anticus was displaced between the internal and middle cuneiform bones. X-rays of the ankle were shown.

DR. RALPH HOMAN presented a paper on "Pulmonary Emphysema" with a case report. The case was formerly diagnosed bilateral spontaneous pneumothorax, and the x-ray pictures supported this diagnosis. The symptoms began after strenuous rowing. The patient died, and autopsy showed extremely large emphysematous sacs on both upper lobes. The heart showed coronary thrombosis, which is thought to have caused death. Dr. Geo. Turner presented the autopsy material, and the case was discussed generally. Dr. Awe stated that he had reported the case to the pathologist at the University of Iowa, who told him that out of 3,000 autopsies performed by him there had been no such extensive case of emphysema, and that there was undoubtedly a marked hereditary weakness of the tissue as well as violent exercise have produced such a condition.

DR. HILL reported on the testing of cows in El Paso county for tuberculosis. Out of more than 9,000 tests there were seven positive reactions. Those cows were slaughtered.

DR. BRANCH spoke of the successful campaign in Dona Ana county, New Mexico, against tuberculosis cattle.

DR. LAWS suggested that if Drs. Hill, Branch and Outlaw had any plan by which the society could aid in this work, they bring their suggestions before the society.

DR. MILLER moved that Drs. Branch, McCamant, Outlaw, and Hill be appointed to bring such suggestions and recommendations before the society. This motion was seconded and carried.



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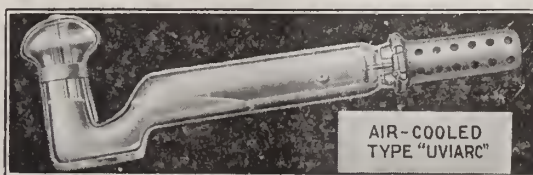
—E. P. CUMBERBATCH
M.B., D.M.R.E., M.R.C.P.

From a paper read before the Southport Division of the British Medical Assn., March 30, 1928. (British Med. Jour., July 14, 1928)



Reprint No. 587 of the above article in full will be sent on request.

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DR. AWE spoke of the work among tuberculous cattle in Iowa.

The secretary presented a letter of transfer of Dr. S. D. Armistead from the Baldwin County, Alabama, Medical Society. This was referred to the committee on credentials.

(October 1, 1928)

The El Paso County Medical Society met October 1, 1928.

DR. F. C. GOODWIN presented a paper on "The Weak, Painful Foot." A resume of the paper follows:

1. The anatomy of the foot was reviewed with illustrations to show the longitudinal and transverse arches of the foot. The normal ranges of motion were demonstrated in the foot and ankle, also the joints in which these motions were produced.

2. The functions of the feet were explained in detail. These are two: They serve as a passive support and as a propeller. To illustrate this, various models and the bony foot were shown.

3. After considering the foot as above stated it was taken up as a complex mechanism. To function properly as a mechanism the bony structures must be held in physiological alignment by the ligaments.

4. Order of examination was outlined and reasons why such an examination should be systematic. The patient is examined with, and without shoes. The shoe is studied to see the areas which are being worn.

5. Treatment consists of straps and pads for four weeks. These are changed once weekly. Plaster of Paris models are made from the feet. To these the Lowman or the Whitman arch support is constructed.

6. Three cases were reported showing results.

(Oct. 15, 1928).

There was a regular meeting of the El Paso County Medical Society, October 15, 1928. A symposium of venereal diseases was given.

The first paper: "Prevalence of Venereal Diseases Before and Since the War," by Dr. K. D. LYNCH. Dr. Lynch gave an informal discussion on this subject. He stated that a review of voluminous statistics failed to convince him of any special improvement. Immediately after the close of the war certainly something had been gained by education of the troops of the A.F.E. Apparently a new crop of young people no longer cognizant of venereal disease dangers were supplying the bulk of the patients. The percentage of his own venereal disease cases at present represented an exact duplicate of the pre-war conditions. However, he believes that syphilis is not so preva-

lent locally. The regulations for reporting venereal diseases he believes to be ineffective as a deterring agent.

The second paper: "The Control of Syphilis and the Prevention of After-effects," by DR. LESLIE M. SMITH. The question of whether syphilis is increasing is a difficult one to answer. Unquestionably syphilis has received more attention since the war, due to the greater experience with this disease obtained by physicians who served in the army and navy, and to the education of the soldiers and sailors concerning the venereal diseases. The routine Wassermann test which is now performed in many clinics and hospitals has aided in detecting many cases of latent syphilis which

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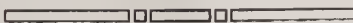
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Dr.

would otherwise have gone unsuspected. Whether there is an actual increase in the number of infections year by year or not, certainly more cases are being discovered and treated. During the present century the incidence of a number of infectious diseases has been decreased, and some have been almost abolished in localities where they formerly were prevalent. To predict that syphilis might likewise be abolished one might appear over-optimistic. However, I believe the task is not impossible, and it should be the goal for which we strive. There are several factors which must play a part in the control of this disease and in its eventual abolition.

First in importance is education,—this to include medical students, physicians, nurses, parents, boys and girls. The instruction on syphilis has been entirely too meagre in most medical schools, with the result that many of our present practitioners were inadequately trained for the proper management of syphilis. This is gradually being overcome by the medical schools themselves, and by the short postgraduate courses and clinical conferences being held every year under the auspices of various organizations. While nurses need not be syphilologists, much can be accomplished by instructing them in public health aspects of syphilis. Instruction can further be given in talks by physicians before parent-teacher assemblies, and by physicians and nurses before separate groups of the sexes in school. These talks to parents and to boys and girls should be given by those who are especially equipped with teaching ability and tact, for the laity are accustomed to thinking of sex and venereal matters as subjects only to be whispered. The selection of a lecturer who has not this ability would be fatal to the purpose in view.

The instruction in venereal prophylaxis given the men in the service during the war was undoubtedly a good thing; and if there has been an increase in syphilis it has been in spite of that instruction. Venereal prophylactic methods might well be given more publicity.

The various state laws requiring reporting of syphilis and other venereal diseases are a step in the right direction, but so far they are not supported and are probably of very little benefit. If the law is explained to all patients with syphilis, the knowledge that they may be reported for failure to take treatment may perhaps have its influence.

The economic importance of the late and disabling phases of syphilis is worthy of consideration. A large percentage of the paralytic and insane objects of county and state charity owe their condition to syphilis, and usually mistreated or insufficiently treated syphilis. Most of this trouble can be prevented by the thorough treatment of early syphilis, follow-up of the cases, and rigid tests of cure before a final discharge. These tests should include repeated blood Wassermann tests, physical examinations, spinal puncture, and complete examination of the fluid. It is up to us as physicians to give instruction to all our syphilitic patients, regarding contagiousness, the amount of treatment probably necessary, the prognosis of the disease at the stage at which the patient happens to be, and the necessity for rigid tests and observation afterwards.

The third paper, "The Effect of Gonorrhoea on Parturition" by DR. HARRY LEIGH.

The effect of gonorrhoea on parturition is essentially that of a classical gonorrheal infection plus certain grave modifications due to the increased vascularity of the pelvic tissues. The possible effect of gonorrhoea on the parturient must be viewed from several angles.

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First, what is the effect on the incidence of pregnancy and the occurrence of sterility? Modern sterility studies place the blame most frequently on the male. Gonorrheal infection ranks first as the cause of sterility in the male. At the same time that an obliterative vesiculitis has rendered the male sterile, a diseased prostate may in turn infect the wife and subsequently render her sterile. Lesions in the female may be absolutely incompatible with impregnation, such as is found with tubal obliteration and cystic degeneration of the ovaries. Lower down obliterative cervicitis or a chronic endocervicitis, or an endometritis may render implantation or the welfare of the fertilized ovum impossible. Again excessive purulent discharge may produce a condition incompatible with the life of the spermatozoa.

Next gestation is often stormy in the presence of a gonococcal infection. In the primiparous, an initial gonococcal infection with a simultaneous pregnancy is apt to be a serious affair. Gynecological invalidism is almost certain. Ordinarily in practically all cases the gonorrhea elects the vaginal glands, cervix and Skene's ducts. Due to the added succulence of the tissues the epithelium may be severely attacked; green-yellow pus exudes, the mucosa becomes reddened and ulcerated, and frequently condylomata develop, the vaginal membranes bleed to touch, the cervix is hyperemic, pouching and eroded; foul mucopurulent material exudes; direct extension frequently infects the decidua. Such cases may abort. Further extension may involve the adnexa. A septic course frequently supervenes.

Labor itself may be associated with dystocia resulting from an old pelvic cellulitis, a perimetritis, or an endometritis. Trauma in the vulvovaginal canal is certainly apt to be more marked in the primipara, due to the thickened inflamed tissues. Such birth injuries are slow to heal. The old-time thirteen day temperature is still found in the indolent healing of a gonococcal infected vaginal canal. Direct extension is especially prone to occur.

The puerperium is occasionally associated with sub-involution. Obliterative peritonitis, salpingitis and a pan-pelvic cellulitis may occur. However we are frequently astounded at the mildness of postpartum reactions in the presence of extensive gonococcal infections. However gynecologic invalidism is very common.

Of practical importance is the resistance to treatment found in the average parturient. Extreme difficulty is always experienced in securing a negative slide or a clinical cure.

Important are possible sequelae that may occur as complications. Joint involvements of persistent character, pyelitis and endocarditis are not uncommon. Accidental eye infections of the patient or of contacts are frequent. Gonococcal proctitis from enema or douch tips can easily disseminate the disease. Due to excessive vaginal secretions tenement toilets frequently convey the infections to young girls. Many such cases have come to my attention. Hospital epidemics of gonorrhea often start from an infected obstetrical patient.

The eyes of all new-born should get special attention wherever a suspect has been delivered, but especially those of a gonorrheal mother. The practice of adopting less irritant drugs, I believe, is to be condemned. One to two per cent silver nitrate has proven effective and safe. Ophthalmologists estimate that 20 per cent to 30 per cent of all blindness is due to gonorrhea in the new-born. In our American institutions for the blind today, something like 25 per cent of all blindness is due to gonococcal infection.

From the angle of the obstetrician gonorrhea pre-

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sents certainly public health and personal welfare problems.

1. A sterility problem extremely difficult to solve.
2. A sterility problem particularly apt to result in domestic crises.
3. The problem of the gynecologic invalid and her concomitant economic dependability.
4. The abortion problem.
5. The late temperatures of puerperium.
6. Communicability of gonorrhea where children are present.
7. Hospital epidemics of gonorrhea.
8. The public liability for the gonococcic blindness.

The fourth paper, "Prostitutes and Prostitution," by DR. E. D. STRONG.

Dr. Strong said in discussing this subject that a brief review of the historical background and a comparison with the present can only lead to one conclusion, namely, that prostitution and the prostitute is here and has always been. Marital incompatibility and perversion of the sex instincts or requirements maintain the ever-present practice of prostitution. He maintains the point that both male and female prostitutes must be recognized as such. Married men as well as married women constitute a very large per cent of offenders, particularly the former.

The fifth paper, "The Suggested Method of Control," DR. W. R. JAMISON.

The history of prostitution can be traced back to the earliest traditions of the human race. Moses attempted to eradicate prostitution without success. Among the Greeks and Romans this condition was rife. The history of prostitution can be traced down the ages. As surely as a community of any size is gathered in a given locality, just as surely will the prostitute make her appear-

ance. The number of prostitutes will bear a definite ratio to the number of able bodied unmarried men in any given community.

It is impossible to promulgate laws that will control sexual appetite,—one of the strongest, if not the strongest, instinct of the human race. As a result of many economic and social factors, 'there has arisen in society a figure which is certainly the most mournful, and in some respects, the most awful, upon which the eye of the moralist can dwell. That unhappy being whose very name it is a shame to speak; who counterfeits, with a cold heart, the transports of affection, and submits herself as the passive instrument of lust; who is scorned and insulted by the vilest of her sex, and doomed, for the most part, to disease and abject wretchedness and early death, appears in every age as the perpetual symbol of the degradation and sinfulness of man. Herself the supreme type of vice, she is eventually the most efficient guardian of virtue. But for her, the unchallenged purity of countless happy homes would be polluted, and not a few who, in the pride of their unttempted chastity, think of her with an indignant shudder, would have known the agony of remorse and despair. On that one degraded and ignorant form are concentrated the passions that have filled the world with shame. She remains, while creeds and civilization rise and fall, the eternal priestess of humanity, blasted for the sins of the people." (Lecky. History of European Morals.)

In the statement above is contained the nucleus of the whole subject of control of prostitution. It is impossible to regulate the sexual instinct. Only by education can we seek to prevent venereal diseases, and that education should begin with the young boy or girl. Instruction in sexual matters should be given early in life, not bluntly, but by

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drawing the child's attention to the pollenization of plants, the hatching of eggs, etc., and gradually, as he or she becomes older, bringing out the propagation of the species, animal and human. When it is judged that the young girl or young man has arrived at an age when they can understand it, the subject of venereal diseases should be taken up, the dangers pointed out and the manner of contracting the same explained. The proper teachers of this are the parents. Many parents are horror stricken at the idea of explaining these things to their progeny, in which case the services of the family physician may be asked. The gradual instruction of the child in sexual matters brings him or her to manhood or womanhood with a commonsense attitude towards these conditions, and they avoid learning them through salacious conversations at school.

What are the underlying causes of prostitution? First, lack of education in sexual matters. Second, inability to live on the wages paid to women. Third, love of tinery.

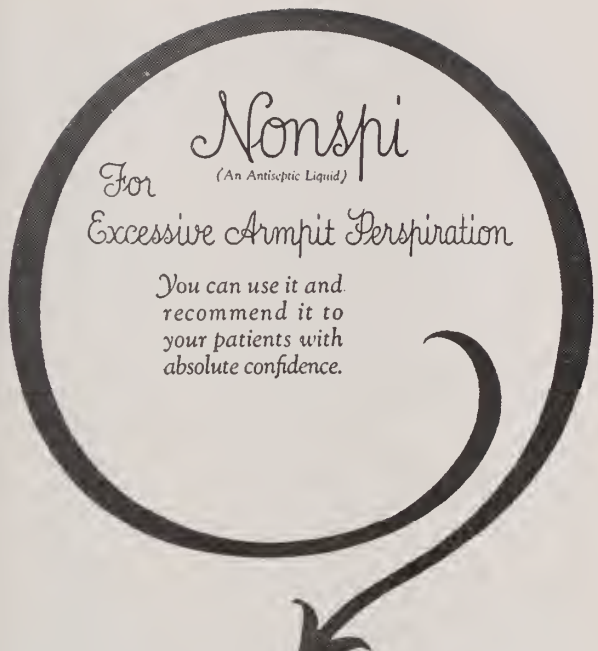
The first cause has been discussed in the preceding paragraph. The remedy for the second is self-evident, and there is no means of preventing a girl selling her body for money to adorn it.

It is Utopian to dream that prostitution can be abolished. From the beginning of history various rulers have struggled with this problem, even to the extent of providing a death penalty for any woman who would prostitute herself. It must be regarded as an amni-present evil. Rules and regulations have been promulgated governing prostitutes in various countries, but these have failed to stop the traffic in human bodies. Within the last ten or fifteen years in this country, we have officially refused to recognize licensed or regulated prostitution, but it has not solved the problem. Loose women have dispersed all over this city, they ply their trade in hotels, rooming houses and in the so-called respectable residential sections of the city. The advent of the motor car provided another means for the professional prostitute to exploit her charms, but without the advantage of having sanitary appliances at hand to prevent infection from her customer.

Another and unexpected effect of taking off the regulations of prostitution has been the seduction of young girls by boys of their own age, due to the fact that the young man has no place that he can go to satisfy his sexual urge. Ten or twelve years ago, every young man knew where the red-light district was and its purpose. Nowadays, a motor car, a flask and a pretty girl and the deed is done. Another girl has been ruined and may, by force of circumstances, be forced into the ranks of prostitution.

Harwood, (J.A.M.A. Dec. 22, 1906), tells of regulation in a settlement of steel workers, the force of which was crippled by venereal disease. Medical examination and cooperation with the keepers of brothels produced good results. Houses were licensed, the inmates rigorously examined by competent physicians. This plan requires the consent of the American people to the legalization of prostitution, which I am afraid would not be tolerated. The strife, as it at present exists, between the abolitionist and the regulationist, is a fruitless battle. Arguments as to the advisability of devising some means for lessening venereal disease may easily demonstrate conclusions on one side, but sentiment and conventionality are equally powerful in formulating contrary conclusions.

Results in large cities have not been what they should have been, largely due to the fact of political interference and graft. But in smaller communities regulation seems to have worked out fairly well. This is best seen in the army.



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To prevent venereal disease, prophylaxis stations should be established in several part of the city where young men can take treatment immediately after intercourse. Of course there will be a loud protest from the ultra-good, that this puts a premium on immorality. What of this? Is not a clean immoral young man better than one who has lost both health and morals? The advantage of prophylaxis stations is seen in the results in the army.

When the great American people can tackle the problem of prostitution and its results, venereal disease; look the matter squarely in the face without bigotry, without fanaticism and recognize the fact that this condition is with us to stay, then a great forward step will have been taken toward the diminution of venereal disease.

Let the abolitionist and the regulationist get together on the subject. Let them look the facts in the face. Then with the greatest tolerance for each other's opinions and beliefs, formulate a plan that will in some measure control prostitution, and, in so doing, abate the awful menace of venereal disease.

DISCUSSION

DR. OUTLAW, City Health officer, spoke of the recent clinic report where forty new cases were reported, all but three were for syphilitic infection. Reporting is the law and facilitates check in refractory patients who are a community menace. The cases are not reported by name. Police enforcement is to be enlisted to bring such persons to treatment if necessary.

DRS. JAMISON, SHANNON, SWOPE, STRONG, WERLEY and LYNCH all expressed doubt as to the value of reporting disease. Education and

prophylactic stations were urged with proper publicity. Proper education, they all agreed, offered the best solution. Dr. Strong spoke to considerable length on the technique of prophylaxis versus postphylaxis.

(Oct. 29, 1928)

The El Paso County Medical Society met October 29, 1928.

DR. H. D. BARNARD, of Los Angeles, discussed informally fractures of the end of the humerus.

Prefacing his remarks, he stated the average run of these fractures show unsatisfactory end results. For three years he has been engaged in standardizing the management of these cases at his Los Angeles hospital.

Prognosis can best be determined in terms of functional recovery, and economic capacity of the injured after a year. The anatomic result may be of less moment. Children, as a rule, recover better than adults. A 90 per cent arc of movement and function may be classed as a 100 per cent perfect. The time element in reduction after the initial injury may greatly influence the prognosis. The T type injury should be accompanied by a warning of a possible poor function. External condylar fractures may result in ulnar nerve dysfunction from scarring or direct injury.

Treatment must be in accordance with the type and age and the severity of the injury. Mechanically the block and tackle should be used to replace fractures more than two hours old, and then under ether anaesthesia. With older fractures, if greatly swollen, and if associated with tropic blisters, a period of suspension to permit the joint and soft tissues to improve is imperative for a

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good deposition. In reduction, an increase, first, of the deformity, then flexion, and external rotation so the little finger is on a line with the external deltoid fibers, is correct to prevent rotation of the condyle.

Dr. Barnard employs a moulded plaster splint to maintain the arm. This splint is made of sixteen layers of bandage and extends from the opposite iliac crest to the shoulder of the affected side. It then extends down to the external side of the humerus, over the olecranon to the palmar surface of the hand. Bandages are applied in the reverse order, care taken to protect the radial pulse.

Dr. Barnard showed diagrams of the use of Coen's line in determining a prognosis.

DR. W. L. BROWN spoke on the usefulness of the method and substantiated the preference of a closed reduction.

DR. GOODWIN recited a case of a biceps hematoma which he had recently seen.

PERSONAL NOTES

Drs. R. B. Homan, Miller, and Safford attended the district medical meeting at Sweetwater early in October.

Dr. Snow of Abilene spent some time in El Paso late in October.

Dr. G. Werley recently paid Dr. McKinley of Alamogordo a professional visit. Dr. McKinley has been ill for several months.

Dr. Hugh Crouse continues confined to his residence and unable to attend to any professional duties.

A recent visit of the secretary of the Medical Milk Commission here resulted in a complete reorganization of our previous method of handling certified milk committee appointments.

JOURNALS FOR SALE:—Dr. Elliott C. Prentiss of El Paso offers for sale some journals which should be of value to some of our readers. He has the American Journal of Tropical Medicine complete from Vol. 1 to date which he will sell. He has the Washington Medical Annals complete from Vol. 1 up to the time it was discontinued. He has the New Mexico Medical Journal complete except for about half of Vol. 5 and two numbers since then. Anyone interested may write to him at 515 Roberts-Banner Bldg., El Paso.

The Department of Health report the following deaths and births:

Deaths for Month of September, 1928			
	Male	Female	Total
White	31	15	46
Mexican	46	41	87
Black	2	1	3
Totals.....	79	57	136

Births for Month of September, 1928			
	Male	Female	Total
White	43	28	71
Mexican	84	88	172
Black	1	2	3
Others	2	0	2
Totals.....	130	118	248

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Volume XII.

DECEMBER, 1928

No. 12

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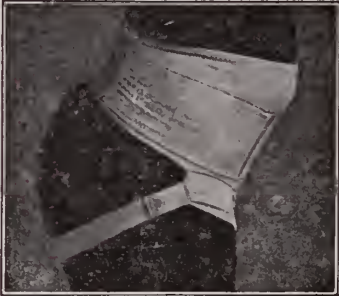
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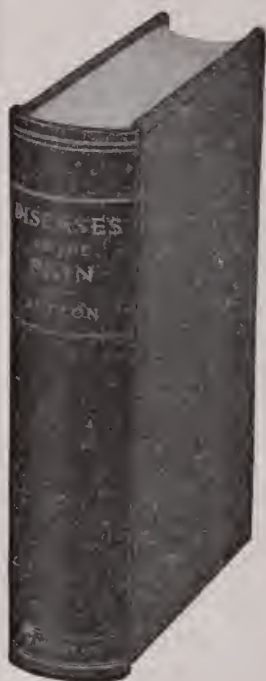
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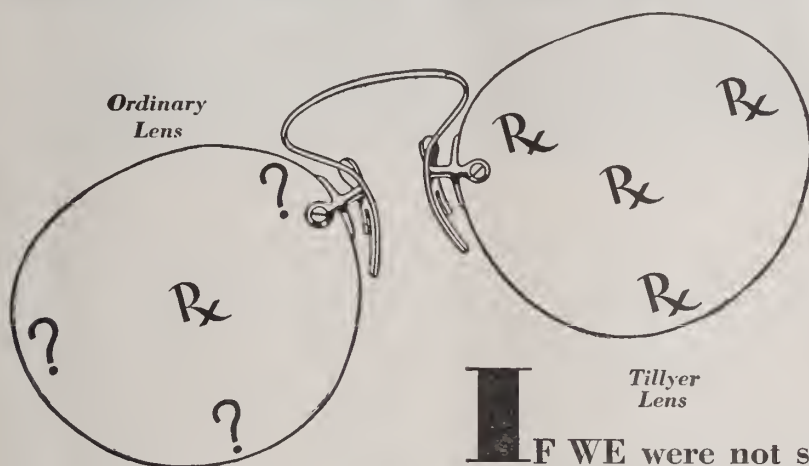
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SURGICAL PROBLEMS PERTAINING TO SURGERY OF LUNG AND CHEST WALL.

FELIX P. MILLER, M.D., F.A.C.S.
El Paso, Texas.

(Read before the Thirty-seventh Annual Meeting of the Arizona State Medical Association, held at Tucson, Ariz., April 19-21, 1928).

Any operative interference within the thoracic cavity must take into consideration physical conditions that are not encountered in surgery of any other part of the body.

In health, the act of respiration depends chiefly upon the rhythmic expansion and contraction of the chest. Under normal conditions the pleura of the lung and the chest wall are in contact, and a negative pressure is maintained between these layers. Upon entering the free pleural space this condition is at once disturbed, and the effect is manifest upon the lungs, the heart and the mediastinum. This effect will be mild or serious according to the physical condition of the soft pliable membranes that separate these organs. If a non-adherent pleura is entered, the size of the lung is diminished. The seriousness of the symptoms that follow will depend upon the size of the opening in the chest. A certain amount of shock follows this operation, but the flapping of the mediastinum in the to-and-fro motion that follows, produces serious conditions affecting the respiration and the circulation.

The failure of surgeons to appreciate these and other facts regarding the physiology of respiration and physical conditions of the chest, delayed surgical interference in many diseases of the thorax until a comparatively recent date. The early surgeons attempted to make a direct attack upon the diseased condition of the thorax, and the resulting mortality prevented the brilliant results that gave surgery its claims in other fields.

Especially was this true in pulmonary tuberculosis and its complications. Thus the confidence in surgery of the chest was almost lost and the patients and clinicians were doubtful in regard to the success of

surgery, when the changed operative technique spoke of the indirect methods of surgical attack upon pulmonary tuberculosis.

Forlanini and Murphy began the indirect surgical attack upon pulmonary tuberculosis by compression of the lung with nitrogen gas and air. This method has been adopted by most physicians engaged in the treatment of pulmonary tuberculosis, until now it has received an established place in therapy.

It is the additional indirect surgical methods of producing compression of the lung that I desire to present to you at this time. These are phrenicotomy, pneumolysis and paravertebral extrapleural thoracoplasty.

These surgical methods should be more widely studied by all who are engaged or interested in the treatment of tuberculosis. The laity and the patient have come to accept the condition as hopeless, and have a preconceived idea that tuberculous patients are bad surgical risks under any circumstances.

The surgical measures named cannot be properly applied without the close cooperation of the internist and the surgeon. Each tuberculous patient should be closely studied and classified according to the pathology found. We must then study the anatomical and biological conditions that prevent the healing of the lesion under observation.

All physicians recognize that rest is one of the most important factors in the healing of the tuberculous patient. All the above indirect surgical operations have this principle in view. The basic idea of collapse therapy is that of rest.

Air compression therapy is used with the view that, after the lesions are healed, the lung may resume its physiological function, while plastic operative collapse therapy decides that physiological function shall never return. Phrenicotomy and pneumolysis are accessory operations that can aid either air compression or thorecoplasty.

The end result of all lines of treatment is the general biologic condition known as

fibrosis and calcification. The study of nature's method of cure shows that these changes produce certain anatomical alterations. The respiratory movements are altered and impaired, while the volume of tidal air is markedly diminished. The shoulder is lowered. The intercostal spaces are smaller, due to approximation of the ribs, and their angulation is increased. The fibrous tissues, by contraction, alter the position of the adjacent viscera. The diaphragm may be adherent, and only slightly movable. It may be drawn upward. The trachea is drawn to one side; the heart, blood vessels and the mediastinum are pulled towards the affected side.

The aim and the idea of collapse therapy is indirect imitation of these natural efforts towards healing. Surgery enables these natural forces to operate more extensively. Frequently the plastic operation allows the collapse to aid the so-called good lung to approach its former natural physiological movement, and, at the same time, relieve the circulation of its altered conditions and embarrassment. The dissemination of the toxic materials from the diseased lung is impeded or prevented. Therefore the general condition of the patient is improved.

The natural cure of tuberculosis in joints shows that rest or immobilization is the essential factor in healing. Immobilization, or forced rest, is the necessary condition to repair in collapse therapy of the lung. The active agents cannot continue to generate and put into the circulation the toxins that produce the complicated disease known as tuberculosis. Naturally the patient's general resistance is increased, and bodily improvement follows.

Karl Schlaepfer² has shown that there is a stasis in the lymphatics and in blood vessels. When the lung is put at rest, a similar condition is shown by Bier's passive hyperemia. By this passive congestion, nature causes the production of fibrous tissue, a step in the healing process. And her efforts heal or fail to heal according to the success of these natural factors.

Extrapleural thoracoplasty, in two or more stages, is now performed for unilateral pulmonary tuberculosis under gas oxygen or local anesthesia, with encouraging results.

The cases showing the marked formation of fibrous tissue are the most hopeful in prognosis. They are frequently called the "formative" or the "productive type." While the tall, stout, muscular patient, with an apparently good general condition, and who has not been cured for a long period, is not considered as a good risk.

The pneumonic or caseous or exudative type are not essentially suitable for collapse therapy. This type does not exert traction upon the skeleton nor the viscera as does the fibrous type.

Small blood transfusions have been of decided benefit in preventing shock.

Phrenicotomy is growing in favor as a preliminary operation. A great number of patients will improve and become better operative risks after a phrenicotomy. All remedies used to stop and prevent hemorrhage will be more potent if assisted by rest of the diaphragm.

Patients that are not essentially unilateral will improve in general health after a phrenicotomy. It may be used to test the ability of the so-called good lung to carry an increase of the respiratory function. It is of decided benefit in cases of tuberculosis at the base of the lung. It is indicated in those cases of artificial pneumothorax which require frequent refills and where, for economical or business reasons, the services of those skilled in the use of artificial pneumothorax cannot be obtained. By diminishing the size of the chest cavity, it will benefit cases in which the termination of artificial pneumothorax is considered, where there is apprehension that final expansion will not be safe in a normal sized chest. It is believed that the operation will lessen the dangers of artificial pneumothorax, especially the formation of fluid, and, at times, empyema. It may prove of service in preventing spontaneous pneumothorax.

There is a growing opinion that phrenicotomy previous to thoracoplasty prevents inspiratory action aspirating septic material into the base of the lung, thereby lessening the danger from pneumonia. In all cases of thoracoplasty it is one of the factors of producing rest or immobility of the chest, as the paralysis of the diaphragm prevents inspiratory movements and also compresses the base of the lung.

Pneumolysis, or apicolysis can frequently be used as an adjunct to thoracoplasty. It is especially useful in compressing a cavity with thick resistant walls. As an independent measure it has a very limited field. It may be used to assist intrapleural thoracoplasty and extrapleural thoracoplasty in obliterating old empyema cavities.

SUMMARY

(1) Patients with pulmonary tuberculosis formerly regarded as lost, can now be saved by surgical collapse of the lung.

(2) Pneumolysis or apicolysis is a supplementary measure to thoracoplasty.

(3) Phrenicotomy alone is of decided benefit: (a) In tuberculosis of the base of

the lung; (b) In the control of the severe pulmonary hemorrhage, where it may be the determining factor; (c) In alleviating the patient's condition in advanced tuberculosis; (d) It may relieve impaired cardiac function.

(4) Phrenicotomy is an adjuvant to thoracoplasty in further promoting rest at the base of the lung and at the completion of artificial pneumothorax.

(5) Paravertebral extrapleural thoracoplasty may be satisfactorily performed under novocaine nerve block.

(6) Surgery of the chest denotes a tremendous advance, and is becoming an important chapter in the progress of the science.

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CAUTERY EXCISION IN CARCINOMA ABOVE THE CLAVICLE

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(Read before the New Mexico Medical Society, Albuquerque, May 11, 1928.)

Cancer above the clavicle is slow to metastasize and is, therefore, peculiarly favorable for surgical attack with the hot knife. Authors vary in their estimate of the tendency of malignancy to spread in this region. Some rate it as high as five per cent. Others (Crile and Blair) as low as one per cent.

Cancer of the lip, mucous membrane of the cheek, tongue, floor of the mouth, tonsils, jaws, larynx, nose, sinuses, ears, antra, glands of the neck, and of the skin, especially of the face, eyelids, and eyes, promises more in the way of beneficial results from cautery surgery than does malignancy in any other region of the body, with the possible exception of carcinoma of the bladder.

I can only hope to make clear in this paper a few of the fundamental factors necessary to give the patient, suffering from cancer above the clavicle, the greatest possible benefit from heat applied grossly or with the cautery knife.

I have now had sufficient experience in the surgery of malignant growths in the various regions of the body to claim that cautery surgery offers more in the way of cure and palliation for the early and late cases than any other known form of treatment. There is no sort of pathology so easy to correct with the heat applications as early malignancies in the areas just mentioned. There are certain imperative preliminaries necessary, however, before this

statement can be made good, the chief being that there must not have been any previous attempts at cure by the use of the cold steel knife, radio-active agents or caustic pastes. Secondary attempts in the treatment of cancer with the hot knife, although by no means hopeless, bear an almost geometrical ratio of failure, based always on the number of previous attempts to destroy the growth.

The tragedy of cancer is the neglected case. In the early stages, in any of the regions mentioned, the treatment and cure of these patients by the thorough application of the heat, is so simple and successful as to be almost beyond belief to those not familiar with the heat technic. This applies especially to the early manifestations of cancer of the skin, above the clavicle. These are the types of the disease that are so frequently neglected, not only by the victim of the growth, but by his physician as well. It is an inexplicable fact that here, as elsewhere in the body, the early manifestations of cancer are rarely treated. They are usually permitted to become destructively offensive, not to say loathsome and repulsive, before anything effective is attempted to change the course of this otherwise fatal disease. Whether this seeming unconcern is due to a primary feeling of hopelessness, or, on the other hand, to a fatalistic stoicism on the part of the patient, is difficult to decide. I am quite sure, however, that this ruinous fact is often primarily due to the unfortunate attitude of our profession toward the early treatment of cancer, not only in the past, but even today. We infrequently attempt anything in a radical way in this disease until some of its dreadful, compelling and often appalling terminal expressions occur. Is it any wonder, then, that these patients follow our plan of early neglect until they are literally forced to do something to keep them among their friends? And if they do come, whether early or late, what do they get? The first suggestion is usually an expression of pessimism wreathed in whispers and draped with gloom and hopelessness, often ending with the heartless advice to take morphine and die. We rarely have anything for their salvation except some indifferent and questionable treatment which we suggest and offer to apply in such a way that it carries but little conviction or hope for deliverance from their disease. In order to successfully manage the cancer patient, we must first change our point of view before the public as to our ability to cure at least some of the various manifestations of this Protean disease.

If physicians but knew the value of the

early, thorough, cautery destruction of accessible cancer about the face and neck, not to mention any more, there would be no terminal cases of the disease such as are so commonly seen today.

DIAGNOSIS

Any sore on the skin that persists over one month, regardless of the nature of the local treatment, and especially if it recurs, is almost certain to be due to either syphilis, tuberculosis or cancer. The exceptions to the practical truth of this statement are so few that they can be ignored. But before any of these three scourges become sufficiently developed to attract attention, we often find localized areas of roughness of the skin which have persisted for months, or even years, before they begin to break down. Patients frequently, when they finally speak to their physician about this form of local trouble, say that at first it was merely a pimple or a little collection of "scurf skin." This is their fanciful, but not altogether inaccurate, description of a very significant but too often ignored pathologic process. I know of no treatment that will certainly and permanently destroy this abnormal collection of surface cells except a finished application of the cautery heat, or the less desirable caustic pastes. I see these areas most frequently after they have been made to disappear several times following treatment with sundry pastes, ointments, acids and radio-active agents. The significance of their perennial return after the application of these various irritating, but rarely completely destructive methods, is usually not grasped by the physician or understood by the patient. Any growth that returns after apparent eradication by physical means, is not innocent. The skin of the face in some individuals is especially prone to take on keratotic changes. This is characteristic of those who spend much time in the open, particularly when exposed to the sun and wind, and whose skin is given no special care or protection. If they are no longer young, all of these tendencies toward abnormal variations in the exposed integument are accentuated. When the real meaning and import of the persistent recurring changes in and under the skin are finally recognized, the patient is usually well on the road in the direction of chronic malignancy. This is particularly true if some of the adjacent lymph glands are hard, and enlarged sufficiently to be palpable. If, in addition, they are fixed to the skin or to the underlying structures, the outlook for the patient is serious just in the degree that this fixation characterizes his disease. The fixity and firmness not only determine the prog-

nosis, but also much of the extent and character of the treatment required.

TREATMENT

What I shall say on this part of my subject must necessarily be restricted to a description of the application of the heat technic to a limited number of the possible malignant growths above the clavicle. But the principle of heat penetration by means of the cautery, can be employed wherever it may be found desirable to treat accessible cancer with the hot iron. As a rule, we make the grievous mistake of applying the minimum amount, or degree, of treatment of cancer as our preliminary effort. This rule should be reversed in favor of the maximum attempt as our first endeavor. When this is done, not only medical men and women, but the public also, will soon learn that something can be accomplished, both in the cure and in the amelioration of cancer.

Most of the patients with frightfully destructive lesions about the face, which I am asked to treat, give a history that began a few months previous to their first seeing a physician. In addition to this, when we remember that their disease almost invariably primarily appeared as a small, persistent, superficial, circumscribed accumulation of apparently innocent cells, the tragedy of their mismanagement becomes shockingly evident. I want to repeat here that the maximum treatment of this condition is, by all the rules of correct cancer surgery, the important one. Destroy it early and utterly with the hot iron and it is cured. But if we piddle and temporize by using the cold steel knife, caustics, acids, the various light treatments, radio-active agents as they are usually applied, or other stimulating irritants, although we may temporarily improve its appearance we will rarely cure the disease. Indeed, we are quite certain to take from the tissues their otherwise normal resistance to the development of cancer, and the recurrences that almost inevitably follow are then too often viciously beyond any method of treatment, heat or otherwise.

THE TECHNIC OF HEAT APPLICATIONS

This will depend on whether the lesion to be treated is on, or fixed beneath, the skin. If on the surface, the most satisfactory results will be obtained by the application of a suitably sized cautery tip to the mass, through the **entire** thickness of the skin, until it is melted down and utterly destroyed. This means that the heat should be applied until the compact circumference which characterizes the morbid growth, is destroyed down to the normally movable structures beneath the tumor and the skin. This method is particularly applicable in the

late cases, where the growth has broken down and become offensive, not only to the patient, but to those about him. As a rule, when the tumor has reached this stage, it is more or less fixed to the surrounding, and especially to the underlying, structures. This melting or destructive process can be done most effectively with my ball-tipped cautery. One of the advantages is that its bulk is sufficient to carry a penetrating degree of heat through the tissues a considerable distance beyond the pathological area. A temperature in the iron that will not carbonize is shown by a dark red color when viewed in a dark room. This degree of temperature should be applied slowly and continuously, until the entire thickness of the involved and surrounding skin and the mass, including the underlying fixed and adjacent structures, are thoroughly infiltrated with a cancer-killing degree of heat.

The remaining method is the total excision of the growth as an ordinary surgical procedure, with the hot knife. In the melting down or in the excision of fixed pathological structures with the cautery, I have formulated the following surgical rule, which works out in practice most effectively. **All tissues normally movable, fixed by the pathology, make normally movable again with the heat.**

If the growth is beneath the skin and not attached to it, the incision should be made so as to form a flap that will permit free exposure of the mass. When this is accomplished, it can be dissected out with the cautery knife, the flap replaced and sutured. It is well, as a rule, to insert a small **un-rolled** rubber tissue drain at the most dependent part beneath the flap. If the growth springs from some of the normally protruding parts of the head—ears, eyelids, nose or

lips—either primarily or by extension from an adjacent malignant area, it should be boldly melted down, as already directed, or cut away with the hot knife. The skin over the cartilages of the ear, eyelids and nose, always heals kindly, if not previously treated with radium, following either incision or excision with the hot knife, provided certain



Fig. 2. Untouched photograph of leather cap following cautery knife excision of lower lip for carcinoma.



Fig. 3. Appearance of lip after the leather cap has been cast off. This usually requires from two to three weeks.



Fig. 1. Central carcinoma of lower lip of two months' duration. The photograph does not show the elevation of the growth nor the degree of infiltration of the skin and mucous membrane.



Fig. 4. Appearance of the lower lip three and one-half months after removal of carcinoma with the cautery.

simple rules are obeyed in the after care. The most important of these is that no primary gauze dressings containing emollients, ointments, or antiseptics, especially of the Carrel-Dakin type, be applied to the operated area, and particularly to the edges of the wound, so long as the leather or horny cap,



Fig. 5. Scar of horse-shoe shaped flap made with the cautery knife, one year previously, for exposure of the maxillary antrum. The photograph of the remains of the incision is much more pronounced than when viewed naturally. At the present time, nearly four years following the cautery treatment, the scar is practically invisible to casual inspection. Part of this must be attributed to active massage, which is always an important factor in restoring scar tissue to that which suggests the normal.

formed by the heat, remains in place (Fig. 2). There is no aseptic dressing that we might want to employ, so perfect as this covering substance which is formed by the hot knife as it coagulates its way through the tissues. It is also well to remember that, treated in this way, i. e. not disturbed, this perfectly fitting leather-like covering remains in place until a wall of normal repair cells is formed beneath it. It is then ready to be, and is, cast off. When it is, normal healing of the parts results, even to restoration of the lip to its previous normal appearance, including the vermilion border, and with an amazingly small amount of scar tissue (Figs. 3-4). If this method of protecting the newly forming, or formed, repair cells beneath the cautery-made leather-like cap, is not followed, the tissues will likely become infected and slough, entailing an unnecessary loss of useful tissue, making the final cosmetic result much less complete. This almost perfect result does not follow if the lip carcinoma has previously been "cured" by treatment with radio-active agents.

The unavoidable limitations for a paper will prevent my going into more detail at this time on a subject with so many im-

portant subsidiary surgical offshoots. There are, however, two common malignant lesions above the clavicle that every physician sees rather frequently and which are, not uncommonly, badly managed. These are cancer of the lip (Fig. 1) and of the antrum of Highmore (Fig. 5). Cancer of the lip is frequently a viciously destructive process for the individual in whom it develops. On the other hand, malignancy developing in the maxillary antrum is much slower in its evolution and progress and metastasizes, as a rule, very late, if at all. This latter fact, however, is but rarely true of cancer of the lip, so that the statement made above regarding any sore that persists over one month, if on the lip, should excite our suspicions at once as to the possibility of its being either malignant, syphilitic or tubercular.

Right here it is important to stress a very practical fact in my experience. If a patient has a positive Wassermann, do not assume that his lesion is syphilitic alone in origin. This is well illustrated in cancer of the tongue, in which statistics seem to prove that in eighty-five per cent there is a luetic base, but treatment of the lues does not cure the cancer. Ewing, of New York, said a very wise thing in a recent article (1924) to the effect that, if a mass looks like cancer clinically, it is cancer. His idea was that we should not become too much wedded to laboratory methods, and especially the microscope, in the diagnosis of cancer. It was refreshing to have a scientist of the standing of Dr. Ewing emphasize the value and importance of clinical experience in the solution of some of our diagnostic problems.

This is particularly important in the management of a persistent sore on the lip or tongue, combined with a coexistent positive Wassermann. If the lesion clinically looks like cancer, it is almost certain to be cancer. This was especially emphasized while I was writing this part of my paper. A splendid looking, apparently physically perfect specimen of a man presented a letter from his physician asking that I treat his sore mouth. The condition began eighteen months before with a small ulcer under the right tip of his tongue. He also gave a history of a chancre twenty-five years ago. This further disclosed that when he consulted his physician one year and a half ago, he was at once put upon a course of salvarsan, which was followed by the continued use of potassium iodid and mercury. But the sore was not improved at any time by the treatment. It continued to grow until, when I saw him, the anterior one-third of the floor

of his mouth was absolutely fixed by cancer. To the tip of the examining finger it felt as if it were cemented in. There was also a deep craterous ulcer, about two centimeters across, under his tongue; the glands on both sides of the neck were greatly enlarged, especially the right submaxillary; and there was pain in his left ear. He could no longer sleep comfortably because of this pain. Pain always stirs the patient and finally the physician and the surgeons also. But what of the medical man who continued to treat this patient for syphilis in the face of the fact that the disease continued to grow in the tissues in the floor of the mouth, the tongue and on both sides of the neck, in spite of treatment for eighteen months? To treat these patients with intravenous arsenical preparations alone, especially if combined with mercury and iodids, may withdraw from them all hope of a subsequent favorable outcome from surgical treatment for the amelioration or cure of their cancerous lesion. In all of my experience I have never seen one of these cases clear under antisyphilitic treatment, but many times I have witnessed the increased growth and progress of the disorder, often to a deplorable extent. So, I repeat, if the mass looks like cancer, it is cancer, even though the laboratory and the clinicians may incline to the view that the trouble is entirely syphilitic. If they insist that it is only this, all I can urge in the interest of the patient, is to try and limit the experiments with drug treatment to the shortest possible time. When this is over, if the patient is still operable, then the indications are always and most imperatively for the excision of the growing mass with the cautery knife. It is true that frequently after ablation where there has been a positive Wassermann, the ultimate healing may be more perfect if the patient is given, subsequent to his operation, tonic doses of mercury and iodid of potassium. But to give these actively and alone and for a long time, is but to invite ultimate disaster to the neglected patient from the progress of the malignant process in his mouth.

The nearer to the median line of the tongue or lip the lesion is situated, the more danger of bilateral involvement of the glands beneath the mandible and in those of the neck. This brings up the never failing surgical question of the wisdom of cleaning out the gland-bearing fascia in both of these regions. I shall dismiss this question here by the simple statement that I believe it to be a most unfortunate breach of good surgical judgment not to remove these glands primarily, with ligation of both ex-

ternal carotid arteries, in practically every instance where it can be done. The patient is never safe from a recurrence in the neck following the development of cancer in the tissues higher up in the head.

The most effective removal of cancer of the lip can be made one of the simplest of surgical procedures. The proper elimination of the glands of the neck, unfortunately, is not in this same class. Their destruction not only requires hospital care but it is a major surgical procedure, by any method. Any part of the lip (Figs. 1-2-3-4) however, can be removed in one's office without any anesthetic, either local or general, with practically no pain, immediate or remote, to the patient. This statement also implies the entire absence of the use of morphine or hyoscine. The hot knife effectively kills nerve conduction, practically instantly. All that is required is that the patient lie down on the examining table. His eyes should be covered with a rather thick layer of moist cotton, and mildly acting compressing forceps are applied to each side of the lower lip at the angle of the mouth—usually old sponge-holding forceps that have lost much of their compressing power, serve best. They not only shut off the inferior coronary branches of the facial arteries to the lip, but are also utilized to turn it outward away from the teeth. At the same time the mass to be removed can be held steady with good tissue forceps while the cautery is made to encircle it. The most desirable type of cautery knife is one that is thick enough to carry a steady and sufficient degree of heat through the tissues, regardless of how wet they may be. Such a knife will not cool rapidly and carries a reserve of heat that permits of its dissemination far beyond the area of its immediate contact with the malignant structures. The short thin-bladed platinum knives usually found in the instrument shops are practically useless for anything but the lightest of cautery requirements. My big copper knife is almost ideal for all types of cautery service. I use it about the eye and in amputations of the thigh, with equal facility. It usually should carry a temperature that will cause the heater at the base of the knife blade to show a dark cherry red. This temperature transmitted to the knife will cause its tip, when dipped in liquid soap, not to hiss, and no soap in the form of bubbles will adhere to it when taken out of the soap solution. A temperature of this degree will cause but a slight momentary sensation of discomfort when it touches the mucous membrane. It is important, when applying the heated knife to the

lip, to keep it there without removal until the entire pathological area has been excised. The heat in the knife blade should be sufficient to permit it to slowly coagulate or melt its way through the tissues. If there is any bleeding while severing the tissues, the instrument is too hot and the electric current should be turned down sufficiently to prevent this. The horse-shoe shaped wound that is left should have a smooth, brown, leathery-like surface (Fig. 2). This, as has already been stated, should be let alone, i. e., without applications or treatment of any kind. If the teeth are absent, the saliva will escape from the mouth and soften and infect the cauterized edge of the wound. In that event some mild antiseptic ointment, preferably with a lanolin base, or solution, should be applied to keep it clean. One of my patients whose teeth were present but not quite in apposition, adopted the very satisfactory expedient of moulding chewing gum behind them. In this way he retained the saliva and protected his lip wound.

In closing, I want to mention briefly the operation, referred to above, for the destruction of carcinoma in the maxillary antrum, which is not only simple to do, but most effective in its final good result. All of the operations that I have so far found described, attempt to approach the antrum through the nose or from beneath the soft structures at the upper and posterior margin of the lip at its attachment to the superior maxillary bone. Cancer of the antrum cannot be most effectively destroyed when the field is more or less obscured, as it is by these methods of approach. In addition, this much better operation avoids the dangerous and, as well, the deforming, results incident to the removal of the superior maxillary bone. The latter operation is a formidable one and should not be considered lightly. My technic avoids the complete destruction of the lateral half of the upper jaw, except in so far as small parts of the bone may be devitalized and later are exfoliated. The method consists in making an external horseshoe-shaped incision through the skin and soft tissues of the face with the cautery knife (Fig. 5). The base of the incision is just beneath the orbital cavity, and the apex at the attachment of the upper lip to the superior maxillary bone. This latter part of the incision avoids severing the obicularis oris muscle from its attachment to the upper border of the alveolar process. The skin and underlying soft parts are reflected from the bony structures beneath, upward, and are protected from destructive contact with the irradiated heat from the

cautery. The cautery knife should then be discarded for one that carries a ball-shaped tip. The anterior wall of the antrum, if not already opened by the disease, should be broken through either with my heavy cautery knife or a bone chisel, exposing the malignant mass. When this is accomplished, the blunt end of the ball-tipped heater is pushed into the diseased cavity and maintained there until all of the abnormal tissues are thoroughly cooked. When this is done, the hot iron is withdrawn and the horseshoe-shaped flap is permitted to drop back into place, and the lateral walls are fastened with Paegenstecker linen sutures. The lower end of the flap remains unsutured in order to permit the introduction of a small unrolled tissue drain which is passed rather freely into the open antrum. This is retained in place for two or more weeks, or until the drainage lessens and becomes serous in character. There is no danger to the eye from the application of the heat in the manner described and the resulting deformity of the soft parts is often surprisingly slight (Fig. 5). The cooked bones should not be touched, either with a bone curette or applications of zinc chloride, with the idea of hastening their removal. If let alone, they will slough out through the beneficent repair powers of the adjacent healthy bony and soft tissues, and leave a normally healing area. In the average case it is not necessary to tie the external carotid arteries. The ultimate results from this technic in this region as to the cure of the malignancy and from the cosmetic viewpoint, are almost perfect.

THE SIGNIFICANCE OF CERTAIN ERUPTIVE DISORDERS OF THE SKIN, WITH SPECIAL REFERENCE TO THE TOXIC ERYTHEMAS, PURPURA, URTICARIA, ECZEMA AND PSORIASIS.

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A very considerable number of the eruptive phenomena which appear upon the skin are routinely recognized and designated as "symptomatic eruptions," that is, cutaneous manifestations of disorders affecting primarily, or principally, tissues or organs other than, or in addition to, the skin itself.

Familiar examples of such eruptions are measles, small-pox, scarlet fever, rose spots, macular syphilide, etc.—evidences of systemic infections; jaundice and herpes zoster—evidences of local disturbance in the biliary tract and a posterior nerve root; drug rashes—evidences of systemic intoxi-

cation from absorption of drugs, particularly the iodides, bromides, balsams, etcetera. In each of these examples, the skin reaction is characteristic, referable to, and due to a definite specific cause and is never excited by any other cause.

Such treatment as may be directed toward any of these eruptions is merely palliative in the expectation and knowledge that they will disappear with the cessation of activity of the exciting cause.

The equally definite and important symptomatic character of many other eruptive dermatoses is, however, often unrecognized or overlooked; eruptions that are frankly cutaneous expressions of internal disorders of widely varying character and often of very obscure origin, infective, functional, malignant, metabolic, at times evanescent or recurring, but often persistent, progressive and serious: of such internal or systemic disorders a skin eruption is not infrequently the earliest tangible evidence. While it is true that this relation of cause and effect is not uniformly specific, a single disorder giving rise to various eruptions, and, on the other hand, the same form of eruption resulting from a variety of disorders, yet the general rule that eruptions of certain character are due to some internal disorder is of definite value to the conscientious clinician. Ordinarily these eruptions are regarded, and dealt with, as primary disorders of the skin, and it is largely because of the unsatisfactory results of such management that skin diseases in general have acquired a sinister reputation for obscurity of origin and resistance to therapy.

To a small group of such eruptions and their clinical significance, attention is here directed in the hope that some one may avoid some of the difficulties that beset my own early experiences with them.

THE TOXIC ERYTHEMAS

Under this heading is brought together a group of disorders of which the dominant, and often the sole, clinical feature is an erythematous eruption, varying in extent from localized, regional or patchy, to generalized macular or complete erythrodermia and in intensity from pale pink to dusky red. All of the acute exanthemata and other rashes appearing in systemic infections and toxemias, particularly alimentary toxemias, belong in this category and are generally familiar. Certain others, however, have a significance that often escapes recognition because of the lack of apparent relation between the eruption and other known disorders.

Rosacea, a congestive erythema of the face and nose, is usually regarded lightly

except for the disfigurement, yet it has its origin chiefly in conditions remote from the face itself: most commonly alimentary toxemia from a disordered digestion, gastrointestinal fermentation, hepatic dysfunction, constipation, achlorhydria, et cetera. Pelvic disorders of all kinds, in women, predispose to localization of rosacea on the chin, and any chronic infection may be responsible for the persistence of this condition.

Erythema Multiforme, as the name indicates, occurs in a variety of clinical forms, the most common being papulo-erythematous, bullous and nodular, which rarely are seen in combination.

The papulo-erythematous type, the most common, appears particularly about the dorsal surfaces of the hands, wrists and forearms, at times on the fingers, the elbows, the nape of the neck, the forehead, the knees, and rarely the feet. The lesions are lenticular congestive spots which spread, become elevated, with depressed cyanotic or even hemorrhagic centres. Tension, burning and itching, with rheumatoid sensations, are common, but severe general symptoms are rare. The eruption extends by successive outbreaks and its duration is from two to five weeks.

The bullous type differs in intensity of the process, the localization being the same except that the mucous membranes may be involved, even the intestinal mucosae, giving rise to severe visceral symptoms simulating surgical conditions. The lesions, instead of remaining flat or papular, become bullous either in their centres or about their borders, forming ringed bullae, often concentric, which, with their cyanotic centres and varying shades of red at their peripheries, form a striking picture called herpes iris.

Erythema nodosum, or the nodular type, appears chiefly over the anterior aspects of the legs, also over the feet and, at times, the forearms and buttocks. The lesions are dermo-hypodermic nodules, varying in size from a bean to a walnut, pinkish to purple in color and painful to touch. They vary in number from two or three to thirty or more. Their soft fluctuating feel suggests a purulent content but they never suppurate and should never be incised. There is often a general disturbance with malaise, fever and rheumatoid pains.

The cause of erythema multiforme is not definite: alimentary and other forms of toxemia are at times responsible, but the most frequent cause is a bacterio-toxic absorption and, in erythema nodosum, definite bacterial emboli derived from localized low-grade infections. Such attacks recur at intervals for years until infected teeth, ton-

sils, sinuses, gall-bladders, appendices, etc., are sought out and properly dealt with. The eruption itself is insignificant but the possibility of serious extension of the original focus of infection is not to be lightly regarded.

URTICARIA

Notwithstanding its striking and uniformly constant clinical features, urticaria is not a true disease entity, but a form of cutaneous reaction to a wide variety of causes and, as such, is the most definitely and characteristically symptomatic of all eruptive phenomena.

As a local reaction to certain violent irritants, such as plants, stings and bites of insects, and extreme variations of temperature; or, in its acute generalized form, as a symptom of alimentary toxemia or of individual susceptibility to particular foods or other substances ingested or injected beneath the skin, urticaria is generally familiar and readily understood; but in its chronic form it becomes one of the most abstruse and complex of present day medical problems, a cutaneous symptom of internal disturbance that will often elude the most expert, persistent and exhaustive search.

The cause of urticaria is composed of two factors, a predisposing vaso-motor instability, and an active precipitating irritation of the cutaneous blood vessels. The vaso-motor instability may be part of an individual constitutional nervous deficiency, or it may be acquired as a result of nervous overstress, exhaustion, shock, et cetera, or the effects of systemic intoxications, alimentary, infectious, glandular deficiencies, et cetera. The precipitating irritations may be either external or internal and are practically endless in number and variety. It is this factor that makes the problem of chronic urticaria so complex and requires investigation of every phase of a patient's life and habits for its solution—his diet, medication, elimination, organic and glandular functions, clothing, occupation and other activities that might furnish a clue to the origin of irritation in each particular case. Even then one may fail, but it is only along this line that any hope or chance for success lies. But chronic urticaria is no minor affair and its victims are made miserable and, not infrequently, their health is seriously affected by the constant annoyance, lack of sleep, and the apprehension of recurring attacks.

PURPURA

Purpura is definitely a symptomatic eruption, since it never has its origin in a purely local disease of the skin; this feature of the disorder is generally recognized in its

more severe forms and when the condition to which it is secondary is evident.

The symptomatic character of the milder forms of purpura simplex, however, is often overlooked, since the eruption may form the whole of the clinical picture. This may consist of few or many disseminated purpuric spots, particularly over the legs and thighs, but at times more generally distributed. Other symptoms are mild or wholly absent, yet this eruption definitely indicates the presence in the blood stream of bacterial toxins, or, more probably, living bacteria derived from an infective process somewhere within the body. Such infections may, of course, be relatively harmless, but the risk of neglecting them justifies a careful search and their thorough eradication if discovered.

ECZEMA

Eczema is a polymorphous inflammatory process affecting the skin, due to a wide variety of external and internal causes. It is probable that it never results from either external or internal causes alone, but that internal causes so alter the resistance of the skin that it reacts in this manner to forms of external irritation that would be without effect upon the normal skin. Conceived of in this way, eczema becomes a symptom of internal disorder, and success in dealing with it is exactly measured by success in discovering and correcting the internal disorder upon which it is dependent.

Local palliative treatment is, of course, required, and no patient with eczema would be satisfied without measures to relieve the distressing symptoms and discomfort that always attend it; but local means alone will rarely, if ever, bring permanent relief.

First among the internal disorders that underlie eczema are those of the gastrointestinal tract; dietary faults both as to quality and quantity of food, abuse of alcohol, tea, coffee, et cetera, dyspepsia due to functional disturbance, particularly an excess or decrease in the normal amount of hydrochloric acid, constipation, intestinal stasis, et cetera.

Chronic infections of all kinds may be the sources of toxemias which express themselves as eczema. Organic disease of the kidneys, liver or vascular system, also latent visceral cancer, are frequently preceded in their active manifestations by severe and intractable eczematous outbreaks.

As part of that constitutional deficiency known as vagotony, eczema appears in alternation, or even in combination, with asthma, hay fever and migraine—a condition which must ordinarily be accepted as incurable, and, in its worst forms, a most formidable affliction.

Nervous disturbances play an important part in the cause of certain forms of eczema; neurasthenia, overstrain, worry shock, inducing a vaso-motor instability in the skin which renders it highly susceptible to external irritation. This nervous influence is probably not direct, but acts by inducing functional, and thus metabolic, disturbances of many kinds which secondarily affect the skin.

As in erythema multiforme and urticaria, allergy plays an important part in the production of eczema. Allergy is now regarded as a congenital or acquired property of specific reaction against definite, widely varying substances, not only proteins, which are wholly, or, at least, in the same quantities, without effect upon the normal organism. Many substances which, alone, are not antigens can acquire antigenic properties by the assistance of certain substances which the organism supplies. Here one's resources and ingenuity will be taxed to the limit to discover the sensitizing agent or agents, since multiple sensitization is very common.

Eczema may constitute a real infirmity, preventing employment in certain occupations. The pruritus and desperation caused by it have led to cachexia or even suicide. Fatal cases for which eczema has been held responsible are probably referable to visceral diseases of which the eruption was merely one symptom.

PSORIASIS

Psoriasis is a congenital abnormal state of the skin manifested by a characteristic eruption under the influence of a variety of precipitating causes, chiefly of internal origin. Many psoriatics pass the greater part of their lives without any eruptive evidence of their condition, but any severe systemic disturbance, a shock, an acute infection, an operation, a profound metabolic upset, will provoke an acute wide-spread outbreak. The eruption itself may then be said to be symptomatic and its treatment along rational lines requires search for the systemic exciting cause.

In this view of its genesis, psoriasis is seen to be an incurable affection, but even in those cases in which the eruption is constantly or persistently present, we should not abandon the search for the precipitating cause, since it may be an incipient disorder, neglect of which may lead to serious consequences for the patient.

This by no means completes the list of eruptive disorders that may be regarded as more or less definitely symptomatic. Many of them are frankly pathognomonic; others simply indicate the coexistence of disorders other than those of the skin. They are high-

ly valuable clinical signs, and their acceptance as such will frequently lead to the discovery of other conditions much more important, which might otherwise have escaped notice.

The problem for solution when confronted by any eruptive dermatosis is simply this: Is this a primary disease of the skin which can be dealt with by local measures, or is it merely a symptom? and if so, of what? The successful solution of that problem will mean the comfort, the peace of mind, and often the well-being of many patients.

SUPERIOR MESENTERIC THROMBOSIS

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Superior mesenteric thrombosis was practically unknown until that brilliant German pathologist described a case from the postmortem room. Virchow, due to his thoroughness, discovered a superior mesenteric artery enlarged and completely closed with a thrombus, so that it appeared as a fibrous cord. The patient, a woman, had succumbed to some other disease and he wrote in detail of the case in 1847. In this case the clinical side does not appear, for the condition had existed for some time, and Nature had come to the rescue and established a collateral circulation. This type of case usually passes unrecognized and is often entirely overlooked, being diagnosed as one of colic, or some partial intestinal obstruction, and after recovery the patient may pass along and succumb to some other disease. A postmortem may never be made, and should there be, the examiner may not be thorough enough to examine all the tissues, as did the brilliant Virchow, and so the condition may never be discovered.

This condition is not common, for, since the first careful description in 1847, about five hundred cases have been described, with only thirty-five of these surviving the attack, whether operated or not. This gives the appalling mortality of ninety-three per cent. The artery is involved about five times as often as the vein, and the superior mesenteric is involved about forty times as frequently as the inferior. It is true, the amount of intestine supplied by the superior is much greater, as it extends from the duodenum to the anastomosis with the inferior at the middle colic. Also Litten maintains that the superior is a type of end artery and has more of a tendency to infarct, while the inferior tends to establish a collateral circulation. One would suppose,

in an artery which forms arcades, that collateral circulation would easily and most frequently obtain. Even though Virchow, Karcher, Chiene and others have had cases discovered in the postmortem room, having died of other more marked pathology, yet collateral formation is the exception in this artery. Karcher's case was a female, forty-one years of age, who had cardiac decompensation symptoms with abdominal pain. She developed femoral thrombosis and in six weeks was operated for gangrene of the leg. She died a week later and on postmortem showed, in addition to disease of the mitral, tricuspid and aortic valves, lateral thrombi in both auricles, infarcts in lungs, spleen and kidney, an obliterating thrombus in the profunda femoris, and, what is more interesting, a thrombus obliterating completely the superior mesenteric artery for a distance of thirty-seven millimeters. This thrombus was firmly adherent to the walls of the artery, but, in spite of that, there was only slight reddening of the mucous membrane of the ileum. Chiene's case showed an aneurysm in a female sixty-five years of age with the coeliac axis, superior and inferior involved and the latter vessels were completely obliterated, forming fibrous cords.

The causes of this rather rare condition may be better studied if we separate the pathology of the artery from that of the vein. Under the artery we think first of embolus, which is often followed by thrombus, or of thrombus alone. The embolus comes from heart valves and vegetations, atheromatous plaques, and thrombus in the auricles or ventricles breaking up; the thrombus, from diseased arteries, aneurysm with extension of the clot and pressure on the artery from aneurysm or tumor. In venous involvement, various causes which may injure the veins, or infect them, or a combination of the two, are the factors. The more frequent causes are crushing and ligating the appendicular veins, pelvic surgery where adhesions are present, splenectomy, volvulus, intussusception, strangulated hernia, or extension from the splenic or portal veins. Clinically they differ in that the arterial disposes to be sudden in onset while the venous tends to be gradual.

Much experimental work has been done to try to ascertain the exact pathology and account for the variety of clinical symptoms manifest in these cases. Sprengel's theory, that obliteration of an artery gave an anemic infarct, while the same in a vein gave an hemorrhagic one, does not here obtain, for, regardless of the cause, the infarct disposes to be hemorrhagic. This hemor-

rhagic infarct is usually followed by peritonitis, the mucous membrane ulcerates and breaks down with hemorrhage into the canal. The mesentery becomes edematous and the intestine may perforate and cause the peritonitis from macroscopic lesions. Extensive gangrene may develop in forty-eight hours and there may or may not be a distinct line of demarcation.

Following the suggestion that the arteries are terminal, as advocated by Litten, various experiments have been done upon the lower animals, but whether the conclusions are safe to accept for the human is a question. These experiments include: (1) ligation of the artery or vein; (2) artificial emboli (oil) which are not typical, so not parallel; (3) cutting portions of the mesentery along the intestinal attachment to study the effect on the mucous membrane.

The result of the experiments in ligating the artery was anemia followed by violent tetanic contractions of the small intestine, followed in two or three hours by relaxation and congestion, to terminate in an hemorrhagic infarct. Beckman and Ravenna showed, in operations on rabbits, dogs, and cats, that no effects were produced and that collateral circulation was established. Injection of paraffin if a large infarct is produced, the center tends to be anemic and the periphery hemorrhagic.

Tying the mesentery along the border of the intestine in three centimeter lengths produces first the change in the mucous membrane by areas of necrosis, while greater lengths, as five centimeters, produce necrosis of the mucous membrane and the wall, but first in the mucous membrane and to a greater extent.

The deductions from the various experiments are as follows:

1. Lodgment of embolus may not produce infarct, but a collateral circulation may be established.
2. Slow closure by a thrombus may stimulate collateral circulation.
3. Many cases of closure of the artery may be overlooked, due to the collateral anastomosis, and the terminal event be foreign to this pathology, so escape detection at autopsy.
4. Cases of aneurysmal pressure with thrombosis and no infarct.

Welch and Mall ligated the collateral circulation of the small intestine at the pancreaticoduodenal and at the middle colic, and nothing happened, as the superior mesenteric was still intact. They then compressed this artery and, when it reached one-fifth of normal, they began to get infarction. This led them to believe it was a matter of

pressure in the artery, whether due to pressure constricting the vessel or cardiac; namely, *vis a fronte*.

Karcher's case seems to corroborate the latter. A female, forty-one years of age, with cardiac failure and collapse, was brought into the hospital. There was violent abdominal pain and frequent bloody stools, with distension of the abdomen and tenderness. The left leg was very painful along the femoral and later this had to be amputated, due to gangrene. Heart decompensation continued and death followed a week after the amputation. The autopsy showed multiple lesions in the heart, as described above in this article, with infarcts in lungs, spleen and kidneys, and thrombosis of the femoral vein with obliteration of the superior mesenteric.

Conclusions: Pain due to lodgment of the embolus, with injury to the intestinal mucosa, as evidenced by the bloody stools, but collateral circulation was fairly established. Many cases have cardiac lesions so lessened *vis a fronte* and a decreased circulation, so, venous stasis with less blood passing through the part, and so, less ability to form collateral channels.

Councilman's case was incomplete obliteration, with fecal vomiting and obstipation and death from intestinal obstruction. Here the pathologist reported atheroma blocking incompletely the superior mesenteric artery, with no changes in the intestines. So the circulation may be partially disarranged with intestinal obstruction and the intestine remain intact. Thus it requires more blood to keep the peristaltic function intact than it does to keep the life of the tissues. This conclusion is shown in intermittent claudication, where the function is disturbed before the life of the tissues.

Reich's case gave all the symptoms of intestinal obstruction, and was operated for the same, and after careful exploration nothing was found. The symptoms persisted and a colostomy and ileostomy was later done, but the patient died.

Autopsy findings: Arteriosclerosis of the aorta, partial thrombosis of the superior mesenteric and an infarct involving the jejunum to the extent of eighty centimeters, thus manifesting after the operation, though no doubt the thrombus existed and produced the ileus of this loop, with the clinical symptoms.

In summing up the above cases we would see three very distinct classes:

1. Like Karcher's, with other pathology overshadowing the thrombus and collateral circulation becoming established.

2. Reich's case being to the opposite ex-

treme, with marked infarction and destruction of the mucosa.

3. Councilman's, intermediate, with intestinal obstruction being the overshadowing symptom and no marked pathology in tissues.

The amount of pathology will depend on the cardiac compensation and the *vis-a-fronte*.

A careful history is of value in about two-thirds of the cases, and will show some suggestion of an etiology; namely, valvular disease, arteriosclerosis or aneurysm, with exciting causes of abdominal surgery on stomach, appendix or hernia. There may be exertion, but pregnancy is also a factor. In the balance of the cases, the history has no bearing. Men are more frequent than women, as two to one, and between twenty to sixty years of age.

Pain is constant in type and paroxysmal, wave-like, merging into the continuous pain of peritonitis. The intermittent type of pain may be ascribed to the anemia which, for the first few hours, is tetanic in type. As it becomes intermittent, it simulates the pain of intermittent claudication. There may be some association with peristalsis disturbed by the obstruction.

Vomiting is frequently present, at first reflex, then obstructive, and later due to the ileus of peritonitis. This is of the stomach contents and, in the severe pathology, that of the intestinal contents, which will eventually be bloody.

Constipation or obstipation is present in the two types of cases; namely, those with the severe destruction of the mucosa and those where peristalsis is paralyzed and no destruction of mucosa. There may be slight amount of flatus with enema but if the involvement is marked, none will pass. Blood is present in the more severe form and will be present in about forty-one per cent. Early diarrhea may precede the constipation. The constipation may at first be due to the paresis, or, in turn, to the gangrene, and later followed by that due to the peritonitis.

The temperature may at first be subnormal but rise later, due to the peritonitis. The abdomen is tender throughout but may be accentuated in a certain area. Gradual distension appears, which is usually tympanic, but may be flat in the sides, later, due to fluid.

Palpation may reveal a local mass, due to the edema, in the mesentery and if palpated, with the other symptoms and findings, helps one to make a diagnosis. On auscultation one finds a gradually decreas-

ing amount due to the paresis, and the onset of the peritonitis.

A leucocytosis is usually present, approximately 20,000, with a differential above eighty-five per cent.

One may classify the symptoms again after the pathology:

1. Very severe destruction; the main symptoms of which are diarrhea with bloody stools and hematemesis, associated with collapse.

2. Less severe, with all the symptoms and landmarks of obstruction.

3. Combinations of the above; namely, bloody stools and hematemesis with obstruction symptoms.

4. Meagre pathology with symptoms overshadowed by greater pathology, and the patient may form collateral circulation.

5. In this group we have very mild pathology but the symptoms are akin to ulcer; namely, pain following eating, which is relieved by vomiting. The pain is explained by the food stimulating peristalsis and this is like the intermittent claudication due to the anemia, and a partial ileus exists. This is followed by vomiting and relief. There may be associated cardiac disease and, so, low pressure in the superior sclerosis where there is a decrease in the blood supply.

Gerhardt says a typical case should present the following: A definite cause for an embolus, intestinal hemorrhage, paroxysmal pains, ileus, fluid in the abdomen, subnormal temperature, with a palpable abdominal mass. If there is no vomiting of blood nor diarrhea with bloody stools, then it will resemble Councilman's case and be diagnosed intestinal obstruction.

The differential diagnosis of the following are to be thought of: Acute perforative appendicitis, volvulus, intussusception, and intestinal obstruction. The more severe cases of thrombosis with the manifestation of bloody stools and vomiting are not confused with the appendix. In the latter, there is pain about the umbilicus, with initial vomiting and then temperature. The pain passing to the right iliac fossa, no obstipation and a return of the vomiting much later, help to place the diagnosis.

Volvulus occurs more in older people, with no specific etiology of thrombus, no bloody stools; but obstipation and distension and vomiting tend to place it as an intestinal obstruction. This, in turn, may be the point in the middle class of the thrombus where all symptoms, as in Councilman's, are obstruction.

Intussusception is more nearly like the severe type of thrombus. Here we have a

child, more often, with sudden attack of obstruction with vomiting (not bloody), with bloody stools and often the sausage-shaped tumor palpable per abdomen or the head per rectum. If there be no diarrhea of blood, and hematemesis, the cases are diagnosed as intestinal obstruction.

The prognosis depends on the extent of the thrombosis and the early recognition and treatment. The progress is rapidly downward, with rising temperature, collapse and peritonitis. Sixty per cent die in the first week and the mortality approximates ninety-five per cent. Five hundred cases are reported in the literature and only thirty-five survived.

Treatment may be classified into the degrees of the pathology:

1. Very mild, with the symptoms of ulcer.

2. More severe, with abdominal findings but where the pathology elsewhere overshadows.

3. Most severe cases, where infarct forms.

In number one, the symptoms are ulcer with the pains as recited above, which are due to the peristalsis being excited by the food intake; and, due to the anemia of the part, there is spasm. Here diets easily digested, with medication to assist digestion. The pathology is a partial closure or a very decreased blood supply due to splanchnic sclerosis.

In the more severe, with overwhelming other pathology, the abdominal symptoms are not of sufficient severity to warrant a laparotomy with the other cardiac, or cardiovascular symptoms, and here eventually, under symptomatic treatment, the collateral circulation is reestablished.

In the very severe types operation is the only method of choice.

CASES

At this point I wish briefly to describe two cases. The first was during my interne days and was so unique that it was not easy to forget. A woman approximately twenty-eight years of age, came into the hospital with only the symptoms of a chronic appendix. She was of the upper strata of society so could have everything she desired. My chief, one of the best surgeons whom I have ever known, operated and removed a small chronic appendix and there was no other pathology. The following days were tragic. The relatives were there and consultations were frequent. The patient began to vomit slightly, the abdomen began to distend and the bowels became more constipated. The temperature rose gradually and the abdomen became more silent until all the symptoms were of a peritonitis. All means to quiet the vomiting were exhausted. Consultants had some suggestions but of no avail, and the eventual came. The postmortem revealed

a thrombus in the ileocolic vein and a portion of the ileum was gangrenous, with a diffuse peritonitis. I can see the patient, a reasonably healthy young woman, restless, vomiting, distended abdomen, nothing relieving the same, and the anxiety of the relatives. It certainly impressed me that a chronic appendix is not to be despised nor a suppurating appendix to be despaired.

The next case, a nurse thirty-two years of age, single, was admitted to the hospital complaining of pain in the right side. She had a negative urine, blood and Wassermann. At this time, September 21, 1927, I removed her appendix and did a subtotal hysterectomy for a multinodular fibroid uterus. She was brought into the hospital almost four months later with a very acute abdomen, which had its onset about fifteen minutes after she had eaten a ham and lettuce sandwich. Her temperature was 97 degrees upon admittance, pulse of 64, and respiration of 20. On the 19th of January, the day following the admission, I saw her for the first time. She was now transferred to the Surgical Service. She gave a history of nausea and vomiting, severe paroxysmal attacks of pain, though it was more or less continuous.

The pains on admission were much more severe and the patient rolled in agony at the time. The admitting physician could not account for the severity of the pain, and, being in a woman, he feared it might be exaggerated. As I had operated her only four months prior, and had removed the uterus and appendix, and there was no history of ulcer, I was firmly of the impression there was a relation to the food, even though some friends had partaken of the same kind of sandwich at the same time. Enemas were followed by a great discharge of blood, and the results of the enemas were not satisfactory as to flatus and feces. The tenesmus and also the vomiting continued. The patient assumed a dorsal or lateral position, with knees flexed, and the hands on the abdomen, in great pain. She had received an opiate under the medical care, so was not in the severe pain of the day previous. Her face was anxious and she looked haggard and tired. The heart was negative for valvular; blood pressure of 133-70. The abdomen was distended and tympanitic, with a suggestion of flatness in each flank. Definite rigidity existed and was of the lower abdomen, with possibly more on the left rectus. My impression was a gastro-enteritis from the sandwich. A urine and blood examination was suggested and this was later phoned to me as follows: 20,400 leucocytes with eighty-five per cent polys. Urine 1.026 with one per cent indican. The urine showed the dehydration with a suggestion in the indican of small intestine trouble. The temperature was 99.2, pulse 76, respiration 20, in the morning, but in the evening they were 99.6, 84 and 22.

January 20th the abdomen showed more tympany, with less peristalsis, and only in the upper abdomen was there audible peristalsis. The lower abdomen was more tender and more rigid. A pelvic examination showed the cervix mobile and no evident tenderness in the cul-de-sac or the adnexal regions. The evidence was not conclusive as the abdomen was too tender and rigid to allow abdominal palpation. A repetition of the enema gave blood and practically no flatus. A repetition of the blood count gave 20,450 with eighty-six per cent polys. A special uring was examined for indican and showed 1.030 sp.gr. with a three plus indican. Temperature, pulse and respiration in the morning were 99, 100, and 16, and later in the day they were 99.6, 100, and 18.

In view of the severe pain followed by vomiting, which was marked at first but less the second day,

continuing with nausea, together with unsatisfactory results with enemas, and the presence of blood, and the blood count persisting with a little increase, together with the marked increase in the indican, I made a tentative diagnosis of incomplete obstruction of the small intestine, probably associated with the appendix operation. My reasons for the diagnosis were that appendicitis, salpingitis and ectopic were eliminated by the first operation. The paroxysmal severe pain associated with peristalsis, apparently, and the presence of indican in excess, suggested small intestinal obstruction, and the blood and slight flatus made me modify to incomplete obstruction.

Upon the above diagnosis I made a right rectus incision, removing the old scar, and believed the trouble would be due to adhesions from the previous operation. On reaching the peritoneum it was dark, as seen in a recent ectopic rupture, and on entering the abdomen, free blood was present. It could not be ectopic and I had never seen an ulcer give free blood, and there were no food particles. I made a culture of the blood, which had a slight odor. On examining into the left pelvis I found a few recent adhesions trying to wall off a loop of ileum about fifteen inches long, absolutely black, and the endothelium losing its sheen and gloss. There was no evidence of bands nor volvulus, but the mesentery was thick and edematous, and this blackness faded into the edema of the normal intestine. The vessels were thrombosed and it was speculative as to the extent of the pathology. The loop was withdrawn and excised and the ends of the ileum sutured into the lower angle of the wound. Plenty of drainage was inserted and a wide sheet of rubber tissue placed to wall off the upper from the lower abdomen, and the wound closed. A tube was inserted into the proximal and the distal loops of the bowel.

The patient went along and made an uneventful recovery, with an ileostomy wound. We used the distal end to give Murphy drip and thus save the patient from nausea incident to the need for excess fluids. In about four weeks I again operated and did an end to end anastomosis and the patient had a good recovery and left the hospital March 14, with only slight soiling of the dressings due to a very small fistula, which later healed.

As to the surgical treatment of the condition. One can never estimate the extent of the damage. It may have reached its limit or it may extend farther after the operation. There are two methods of handling the case. Moynihan suggests the excision as I did in this case, and making the enterostomy openings and using them for fluids and food, etcetera. Others, if possible, treat the loop as in a Mikulicz operation, and later excise the loop and have the gun-barrel effect, and then anastomose. It is usually inadvisable to anastomose at the time because the patient is in great shock and the added time is an item. Also the edema of the apparently normal bowel is great and makes the operation difficult.

CONCLUSIONS

Occlusion of the mesenteric artery is usually from an embolus followed by thrombosis. In the mesenteric vein it is thrombosis from the start.

The lesions produced are variable from slight congestion to marked ulceration and extensive gangrene:

1. The occlusion may be followed by collateral circulation either of a temporary or permanent nature.

2. The occlusion may be followed by cessation of function, yet the life of the intestine be intact.

3. It may be an infarct with death of a variable amount of the small intestine.

If we have occlusion of a branch and get collateral circulation, we may have slight abdominal pain and distension and these be overshadowed with a greater pathology and the patient survive.

In number two, where the occlusion is in part only, and the function is disturbed, without the life of the tissues, the symptoms may be those of ulcer or intermittent claudication. These patients in the more severe type have pain incident to food and the tetanic pains like the spasm incident to the anemia. Symptoms of obstruction supervene and the patient may be operated and no obstruction discovered.

In the most severe type, number three, there is definite evidence of obstruction with hemorrhage from the bowels and vomiting, often with blood. These gradually fuse with the clinical findings of peritonitis.

This condition should be regarded as requiring surgery though a few milder cases have had a favorable outcome without surgery.

DISCUSSION

DR. O. S. FOWLER, Denver, Colo.: I wish to compliment Dr. Smith on his very interesting and lucid presentation of this condition and want to mention another phase of it—food poisoning in relation to mesenteric thrombosis. I saw three cases following eating shell fish or sea fish. It is my opinion that we should not eat sea fish out here in the middle of the continent. I have never visited a cannery, but it is my impression that the fish are not kept in a real good condition from the time they are caught until they are shipped. Ten or twelve years ago I had occasion to go to Kansas City in the middle of the summer—I remember it was a hot July day. I got off the train and walked along the gravel walk and saw the freight being put on and off the cars. I saw there a crate of fish that was being shipped, one end of which had become broken and the fish were scattered about on the gravel walk. There was evidence of there having been a little ice on them, as there were two small chunks of ice left, with several hundred pounds of fish. When I came down the following evening, I saw another similar crate of fish broken open and the fish scattered all around, and this crate also had a single chunk of ice about half the size of the crown of one's hat. If we are going to eat fish out in the middle of the continent, let's eat our own products. It is certainly repulsive that things should be shipped from the Atlantic Coast under these conditions. They

should be frozen, if shipped and brought out here. So I say if we must eat these fish, let us have the fish that are caught in our own localities.

It is very important that certain other food products be pure. Dr. Smith mentioned the matter of ham. There is something about the decomposition of meat that hurriedly gives a very severe poisoning to the body and especially to the intestinal blood supply.

I want to speak further of the mesenteric venous thrombosis following operation. One of my cases required a resection of over seven feet of the small bowel. This was followed by recovery. I had another case in which over five feet was dissected, with recovery. Thus we see that the chance of recovery in operative thrombosis is better than in the poisoning of fish or meat products. They have such severe stomach symptoms almost from the start that the chances for recovery are slight. I do not know what can be done in regard to the shipping of fish, but this is an extremely important question.

I feel that we, as doctors, should prohibit our patients in the hospitals from eating fish. I have seen a number of cases of severe fish or food poisoning on Saturday mornings in the hospitals, so much so, in fact, that when I was associated with their treatment, I prohibited the giving of fish to patients in the hospital. I recall the case of an old gentleman who was ready to go home on a certain Saturday. The day preceding, which was fish day, he was given a bowl of clam chowder. On Saturday morning he had a temperature of 106. It looked as if he would certainly die. He was so ill that he was forced to remain in the hospital for seven weeks after the time he was originally ready to go home. If you will watch your patients in the hospitals, perhaps you will find that you have more enteritis cases on Saturday than any other day in the week. These fish poisonings are extremely hard to recover from; the patients are ill for a long time and it is quite a serious thing to cure.

DR. F. H. CRAWL, E. Las Vegas, N.M.: I was certainly much interested in Dr. Smith's paper because it has been my misfortune to have two cases of mesenteric thrombosis, both of which died. One of them occurred in the first portion of the duodenum and jejunum; the other in the ascending colon and part of the transverse colon.

In the first case the patient was sick primarily with what was called "la grippe," followed by sinus infection, and was then taken suddenly ill with acute abdominal pain and vomiting. The first vomiting was perfectly clear, but later the vomitus became wine colored and continued so up to the time of death. The bowels were moved a number of times with enemas in the early stages of the disease. The patient was not operated upon and lived only five or six days. Autopsy showed complete gangrene of the abdomen, going about two and a half inches beyond the bowels and extending down the duodenum seven or eight inches. The wine-colored vomiting impressed me very greatly and later on I saw another patient who had the same kind of vomiting and I made a diagnosis of mesenteric thrombosis, but, on operation, he had a large gallstone which had lodged in the duodenum. There was a good deal of scraping of the interior of the bowel so that, as the contents regurgitated into the stomach, they became wine-colored. This condition was entirely different, but the symptoms were somewhat similar.

The other case of mesenteric thrombosis was that of an elderly man. I knew that he had had a regurgitant murmur for many years. He was taken sick after eating a light supper, with what

was thought to be acute indigestion. The physician who saw him first said that he had no fever, normal pulse and principal complaint was colicky pains. I saw him on the third day. By that time, while he was vomiting, the bowel movements were light, but dark, ill-smelling material came with every enema. He had subnormal temperature from the beginning and I suspected it might be a case of mesenteric thrombosis. On opening the abdomen, gangrene in the internal ileum was so extensive that it was impossible to remove the gangrenous area. He died within two days. The symptoms were very different in this case.

DR. WILBURN SMITH (closing): I want to emphasize what Dr. Fowler has said in regard to fish poisoning. One case I remember very well. A young man, age 32, nurse, negative as far as kidneys were concerned, Wassermann negative, no evidence of vascular degeneration, therefore no possible cause for embolus. It finally leaked out that some friends of his who had eaten certain sandwiches at a picnic or party they attended had been ill and, as he had partaken freely of these sandwiches, undoubtedly his trouble was due to this source.

In regard to the extent of the gangrene, a surgeon in a London hospital had a patient come in in extreme shock—an old woman. Complete blocking was found, with gangrene from the duodenum, the cecum and the ascending colon.

I want to emphasize the fact that there are three types of cases where other pathology completely enshrouds the impending pathology:

1. In cardiac difficulties, with mitral aortic valve disease and thrombi in the heart, together with femoral thrombosis, or a severe mesenteric thrombosis.

2. Those cases in which there are intense obstructive symptoms, where the vomiting persists and yet you do not get the hematemesis, and neither do you at that stage get the blood in the stools, so you operate for intestinal obstruction.

3. Vomiting continually and the passage of blood implies the question of severe infarct or blocking of mesenteric vessels, producing obstruction.

These are the three types of cases we have to consider. In the treatment I cannot help but emphasize the fact to get in and get out quickly; do just as little as you have to do. You do not know, after you have dissected, whether the gangrene is going to go on and the thrombus continue.

SOME FUNCTIONAL DISTURBANCES OF OTHER ORGANS REFERABLE TO GALL-BLADDER

CRUM EPLER, M.D.
Pueblo, Colo.

(Read before the New Mexico Medical Society, at its Forty-sixth Annual Meeting, Albuquerque, N.M., May 10-12, 1928).

Six years ago, I appeared before your Society and discussed a paper upon the subject "Operation of Election in Cholecystitis," suggesting some technic at that time, which now is in general use.

Today, I desire to call attention to some of the symptomatic disturbances of other organs, wherein the true pathology is located in the gall-bladder.

It will not be my purpose to enter into discussion of the etiology, nor the methods

of cystic infection, other than to say that each of the several methods of infection has sufficient authoritative proof to make it tenable, and, personally, I will grant that the organ may become diseased by one or more infectious routes or causes.

I shall not enter into a discussion of the treatment of cholecystitis, for the reason that I believe that a gall-bladder, once diseased, never again returns to its full normal function, and it is only a matter of time until the cure will be brought about through surgical procedure. I shall exhibit some specimens of varieties of gall-bladders preserved in normal colors from the living subjects, and permit you to judge for yourselves if a cure could have been brought about by medication.

It would be presumptuous upon my part if I attempted to suggest any symptoms new to you all, but I do hope I will be able to refresh your thoughts. In this you will recognize some of the suggestions of other writers, but, as this is a personal paper with exhibits, I shall refrain from mentioning an extended bibliography.

However, I desire to mention briefly, in a very general way, that the neighborhood of the gall-bladder and ducts, the under-surface of the liver and pylorus, possesses a wealth of sympathetic nerves, not excelled elsewhere. These nerves are not confined to the above mentioned region alone, but spread less densely all over the abdomen. At the root of the liver and common duct is the locality from which the whole abdominal sympathetic system is controlled: accordingly, anything that interferes with that innervation will interfere with the whole group of organs. The vagus nerve also supplies the liver. Reference to difficult respiration will be spoken of later in symptomatology of cholecystitis. This symptom is not common in other pathologically involved organs of the abdomen.

It has been but a decade ago that a characteristically severe paroxysmal fortnightly pain in the upper abdomen, associated with vomiting and shock, made the diagnosis of cholecystitis obvious. This syndrome is not to be overlooked, as it is almost pathognomonic of certain types; yet the fact is not to be overlooked, either, that this picture diagnosed but a very small per cent of the cases of cholecystitis, because it is present in only a few of the many who suffer from the disease. It will be upon this basis that I shall discuss allied and obscure symptoms in individuals whose real pathology is to be found in the gall-bladder.

From the standpoint of the clinical pathologist, there are about a dozen divisions of

pathological gall-bladders, yet from the surgeon's standpoint, there are really but two, namely, the acute and the chronic.

By all methods extant, the diagnosis of cholecystitis is correct in about eighty per cent of the cases, but before operation it is impossible to determine the type of disease present. Cholesterosis is one of the most common conditions found, varying in degree from the acute catarrhal to acute exacerbations of the old chronics.

I especially desire to invite your attention to gastric symptoms that are reflexes from the diseased gall-bladder. Many patients present themselves to the surgeon with a vague lot of symptoms of gastric appearance. It is common occurrence that patients will come in with a long line of symptoms of the chronic dyspeptic—this word I use with apologies, but it covers a multitude of gastric disturbances that in the past have been classed as "stomach disorders." In fact, the stomach has long suffered as the loud speaker for other diseased organs. The stomach is subject to comparatively few organic disorders, and when you exclude ulcer, tuberculosis, cancer and syphilis, you have a fairly clear field for the consideration of all other gastric disturbances as functional. Deaver has said: pain relieved temporarily by food, to begin again soon and last until the next ingestion—duodenal ulcer; pain exaggerated by the taking of food and lasting until the stomach is empty—gastric ulcer. These statements must not be taken literally as pathognomonic, but constitute a good rule to bear in mind as a pointer in furthering your investigations. We must not too hastily conclude upon such symptoms, because it has been asserted that, in cases operated for duodenal ulcer, forty per cent have been found at operation to be cases of cholecystitis. In my own practice, I have found that the percentage was not so high, and I feel that many of these diagnoses were made either before, or without, the application of all our modern diagnostic methods.

A gastric syndrome, of early satiety, feeling that the stomach was overloaded soon after the beginning of the meal; the presence of a distress rather than a pain; eructations of gas; fullness along the subcostal girdle, so great that the pressure of the clothing causes pain; a cardiac distress with difficulty in respiration; a sudden unaccountable nausea and faintness, which may cause the patient to leave the table; later, the belching of much gas; heart burn; water brash, and sometimes the spitting up of small particles of food, forms one of the most common pictures in which the gall-

bladder is to be suspected. Furthermore, the patient will tell you that this condition has lasted for many years, sometimes almost disappearing, only to return again; and each succeeding attack is worse than those before. As time goes on and the gall-bladder becomes more chronic, the gastric function becomes more involved, and the patient then gives a history of a recent rapid loss of flesh. These cases are nearly all asthmatic from the beginning; they are nearly all constipated, with occasional diarrhea, but few give histories of jaundice, or skin color changes, though the patient may be mildly icteric at the time. The loss of flesh can usually be traced to the abstinence from food and, frequently, to a very small water intake. When questioned as to why they do not take more food, the answer is universal: "It does not agree with me." You will then determine by questioning—one of the most important answers bearing upon gall-bladder diagnosis—that these cases have refrained from eating heavy proteins, fresh pork, boiled cabbage, and so forth. I believe that these cases have more frequently ceased to eat cabbage than any other article of diet, and to me it has been a key symptom in a great many difficult cases of diagnosis.

As to methods of diagnosis, allow me to insist upon a very carefully taken history. Do not be content with a vague or evasive answer to a question, but put it, over and over again, until you get a history that upon analysis will give some sort of a clinical picture, and then, by the diverse methods at hand, either prove or disprove your suspicions.

In obscure cases, the very chronicity of symptoms should arouse suspicion. One cannot, from symptoms alone, predict the anatomic classification revealed at the time of operation. The gall-bladder may be packed with calculi, with only a previous gastric syndrome; it may be a thin-walled gall-bladder of the hydrops-fillae class; it may be a thickened walled organ, having engrafted upon it an acute infection known as cholesterosis; it may be an atrophic bladder of either the atonic or hypertonic type; it may be one of many other classifications, or it may appear macroscopically normal. There may be disease in the wall that is not discernible by the ordinary methods of inspection and palpation, but, whether demonstrable or not, the biliary system has not functioned properly; therefore, we must consider diseased gall-bladders not only from the organic but from the functional incapacity.

The physical findings are not always be-

set with many illuminating facts; the subjective symptom of pain upon pressure in the region of the gall-bladder does not always mean that the organ is diseased. This palpation should be made with thumbs of the two hands on opposite sides and, as pain is only a relative matter, the characteristics of the individual must be considered. The high right rectus rigidity, either with or without the complaint of pain, should not be taken too seriously, but should be differentiated from a gas-filled hepatic flexure of the colon, and the rigidity occasioned by other peritoneal irrigations.

DIFFERENTIAL DIAGNOSIS

We must differentiate from all the kidney involvements, particularly of the right side, such as renal colic, the twisting of floating kidney, pvelitis and Dietl's crisis, the appendix, epigastric hernia, visceroptosis, acute pancreatitis; from angina pectoris, acute involvement of the coverings of the heart, pneumonia and pleurisy, tabetic gastric crises, peptic ulcer, plumbism, zoster, and even ptomain poisoning.

Hastily, I will invite your attention to a few of the symptoms in an effort to clarify the picture of these things, other than cholecystitis, that might be considered.

In the renal colics, the pain usually begins in the loin and radiates down into the genitalia; there is a disturbance of the urination, with blood. The twisting of a floating ptosed kidney may closely simulate biliary colic: but the pain, while at times as severe, is more steady and less intermittent in character. Pvelitis also simulates gall-bladder colic, but has associated a urinary disturbance, with pus; vomiting is infrequent; the leukocytosis is high and fever present: to establish these facts beyond the peradventure of doubt, the urologist and laboratory should be employed. The epigastric hernias or epinloceles, occasionally give a set of acute pains similar to the pain of cholecystitis, and are nearly always causing some gastric disturbance by virtue of a generous common sympathetic nervous supply. These hernias can be palpated if the patient is put in a proper position.

Glenard's disease, or severe visceroptosis, frequently causes pain in or about the biliary region, due to traction and pylorospasm, with all the incident gastric symptoms due to a tonic pylorus; the roentgen ray should be employed as a diagnostic method in a full gastrointestinal examination with the opaque meal.

Acute pancreatitis, which, in itself, is frequently a sequela of gall-bladder disease,

may simulate cholecystitis, but the pain is very much more severe and persistent, is located higher, being well up in the epigastrium, with a fulness and tenderness extending toward the left side. The patient is much more shocked, presenting a peculiar cyanotic appearance not recognized in other diseases. About the only laboratory technic of value is the finding of a higher leukocytosis, a temperature (after the first onset) and the stool examination for fats.

Angina pectoris presents a picture that one would not suspect, upon first thought, to have any overlapping symptoms with the gall-bladder, but the pain is in the epigastrium, and frequently radiates to the back, and may be accompanied by nausea or vomiting; the shock is greater. One very important point is that the blood pressure suddenly becomes very low; the patient afflicted is usually older than gall-bladder cases.

Pleurisy and pneumonia are known to present symptoms in the abdomen, especially like appendicitis and diaphragmatic involvement, causing an acute pain upon respiration; and in this connection a jaundice may follow the onset of these attacks, which might cause one to believe that there was some involvement of the biliary tracts. The best differential method is to wait a few hours and treat your patient symptomatically, and if it is pneumonia the disease will be obvious.

The tabetic crisis has misled many a surgeon to open the abdomen for cholecystitis, much to his chagrin when he later finds the knee-jerk absent and the Argyll Robertson pupil present, and the Wassermann reaction positive. The symptoms are more severe, last longer, and are but little influenced by treatment: the differential should not be considered onerous.

The peptic ulcers are very misleading unless the modern laboratory methods of diagnosis are used, and for the more than occasional mistake there is no legitimate excuse.

Plumbism presents suddenly a syndrome that is very much like some gall-bladder attacks. Three diagnostic procedures are paramount: the history, the gums and the red blood-cell examination.

Herpes zoster is infrequent, but sometimes presents a neuritis, and, according to its habits, follows closely the course of the intercostals. Sometimes, before the eruption, one might be misled, believing that a mild acute cholecystitis was imminent, but if such is your suspicion, before you con-

vince yourself definitely, the eruption will have appeared.

Ptomain poisoning has had a fairly free cause, as a condition caused by the ingestion of bad foods or lead or tin oxides, and, while this condition does frequently resemble gall-bladder trouble, it is attended with diarrhea, very great prostration, thirst and a set of shock symptoms that are not very difficult to demonstrate as different from cholecystitis.

This brings us to the fact that the appendix, when diseased, sometimes causes a high right rectus rigidity, and to the further fact that there are cases in which physical findings cannot differentiate between appendix and gall-bladder without operative procedure. These appendices are usually retrocolic and high up; the pain is, however, usually lower, with more lower right rectus rigidity, and flank pain upon pressure. The leukocytes are higher; the history is of great importance.

As to the palpation of the gall-bladder, this can be done more frequently than heretofore believed, but must also be differentiated from floating kidney, hypernephroma, carcinoma of the colon and masses in the lumen of the hepatic flexure of the gut. One point in palpation, and that is that the gall-bladder will always be lower than normal, due to the lowering of the free margin of the congested liver. The fundus will feel larger and dwindle small until it gets from under the finger as it recedes beneath the liver margin. The most difficult differential when the gall-bladder is palpable, is the ptosed kidney. It has been within a month that a case was referred to my urological associate, Dr. H. T. Low, and he diagnosed and demonstrated by pyelogram that it was a hydronephrotic ptosed kidney. I could palpate a gall-bladder. The cystogram without dye proved it to be a case of cholelithiasis. Both were present in this case. Hematogenous jaundice is a physical symptom that is of but small moment and, in certain cases, difficult of recognition, though in these chronic gall-bladder cases there are skin changes always present to some degree; the laboratory should be used to determine pigments.

To refer again to the gastric symptoms: After a very careful history has been taken it will be necessary to institute laboratory methods, and the first will be either the Ewald meal, or the fractional test. One thing of great value that is determined by this procedure is the HCl content. It may be normal, hypo- or hyperacid. The normal is not very usual in chronic cholecystitis. The hypoacid stomach is very common and

is usually found in asthenics, who give a long history of gastric disturbance and maintain a rapid emptying stomach with a patent pylorus. This class compose sixty per cent of the acid-disturbance gall-bladder cases, and usually have old chronic atrophic bladders that seldom contain stones. The hyperacid cases are usually found in the robust, who have had more or less recent acute, though not very distressing, attacks of stomach symptoms, gradually increasing in severity until vomiting occurs; rapid loss of flesh. These cases possess tonic pylorospasms, with long retention of food, and have acute gall-bladders engrafted upon chronic bases, and frequently containing stones. The blood count is very important in all these cases: the leukocytes are not high; the differential is not often over fifteen per cent increase, but the platelet count, as a differential in the anacid cases, is of paramount importance in excluding pernicious anemia. The blood count is not, in itself, so important, except in its persistent low percentage, which is to be taken as significant.

The van den Burg liver function test, is all-important in determining the bilirubin content of the blood, and is significant in the study of patients with jaundice.

The duodenal tube should always be used as a diagnostic method, if for no other reason than to determine if any concentrated bile is being poured into the small intestine. But it yields other valuable information in connection with the microscopic examination of the bile obtained: Cholesterol crystals suggest gall-stones, while pus suggests infection, and so forth. As a therapeutic measure, it is of value in cholecystitis as follows: Should there be no bile from the gall-bladder, the test should be instituted again, because some authorities claim that frequently an occluded cystic duct, due to recent catarrhal involvement, will become patent by the repeated use of the magnesium sulphate in the duodenum.

As to the use of the roentgen ray: This method with the barium gastric meal shows two main types of stomach. The first will be the atonic, with but little motility and less tone, with rapid emptying, with constant dissimilar defects of the caput duodenalis. Frequently we may feel that there is an old duodenal ulcer scar causing the pyloric patency; this is usually dispelled by the absence of a constant filling defect. These cases are mostly the an-acid ones mentioned above. The second type is the one in which the motility for a short time is hyperactive, with deep systolic waves, a vigorous tone, and but little emptying, showing an unfilled cap of inconsistent con-

tour. This condition of gastric gymnastics soon ceases, and the content of the stomach lies and ferments behind a tonic pyloric spasm, sooner or later to be ejected through the mouth. Water is treated the same as food in the more severe cases. These cases are the gall-bladders in some stage of acuteness engrafted upon an old chronic base, are hyperacid, and usually have stones.

CHOLECYSTOGRAPHY

No auxiliary diagnostic method has taken root so quickly as the Graham-Cole method of cholecystography. This is partly due to the heretofore few outstanding physical signs in gall-bladder disease, and, further, to the fact that it has caused the visualization of an organ by roentgen methods, to which few before credited any great amount of diagnostic acumen. Some diagnosticians have made great claim for this method, and I will grant it is of great significance: as time and interpretation proceed, this method will find its place as one of great helpfulness and benefit, though shorn, to some degree, of the values claimed by the over-sanguine.

As a basis for consideration of the important diagnostic features of the cholecystogram, let us first make a picture of the normal. The dye, whether given by mouth or intravenously, finds its way to the circulation, is collected by the liver and passes into the bile ducts. Some of it will enter the gall-bladder, there to be concentrated, and it is easily visualized on the x-ray film. The gall-bladder, in turn, will empty within certain time limits, depending upon the habitus of the patient and his contact with foods, especially fats. This is termed the negative picture.

The positive roentgenogram, while it is obtained in the same way, is an entirely different picture. Its interpretation consists of the following: A failure of the visualization; a partial and imperfect visualization; a delayed filling and emptying.

In considering these, a failure of visualization is suggestive of interference with cystic duct, such as complete obstruction, either acute or chronic, or a gall-bladder whose content will not permit any bile to pass into it, being filled with stones, gall-bladder mud, already filled with bile, or other substance.

A partial visualization would indicate a chronic gall-bladder, either not functioning in its effort to concentrate the bile, or mottled as one containing stones. In this case, bile is entering the viscus, at least in part. The imperfect visualization indicates the inability of the gall-bladder to concentrate

the bile and dye; or, if it be irregular in contour, we suspect other things, such as adhesions, pressure from without, or malignancy.

The delayed filling and emptying indicates the possibility of adhesions, or partially obstructed cystic duct, or extraneous mechanical interference with the organ. In this last condition such outside interference is nearly always of the inflammatory nature due to a previous infection of the gall-bladder.

All of these positive findings are inferentially diseased organs, though they naturally vary considerably in degree.

SUMMARY

1. Cholecystitis is a very common disease, manifested by symptoms in other organs, especially the stomach.

2. A long and persistent gastric syndrome especially free from acute pain associated with the taking of food, warrants a thorough gall-bladder investigation.

3. The Ewald meal, the duodenal tube and the cholecystogram are indispensable methods of diagnosis.

4. The history is paramount, and, together with physical examination and other laboratory methods, is of the greatest importance.

DISCUSSION

DR. C. V. BRINDLEY, Temple, Texas (opening): I want to emphasize one point made by Dr. Epler. He several times mentioned the importance of history. I am a very strong believer in a detailed history, because I think a detailed history is most important to diagnosis and also the most important thing in determining what advice the patient should have—whether it is a surgical gall-bladder or should be handled by medical measures.

About a year ago I made an analysis of the history of two hundred gall-bladder cases with this particular point in view, that almost all gall-bladder disease is a sequence of some other infection, and I believe that, by going far back into the history, it will help you greatly to cinch the diagnosis. You will often find that, during a pregnancy, or shortly following a pregnancy, we have the first symptoms; often the history shows an attack of flu, with spells of colic. In analyzing these cases, we find very few persons who did not have history of rather severe respiratory infection—tonsillitis, flu or pneumonia—or pregnancy. We believe pregnancy has a very direct relationship, as, out of a series of one hundred cases, twenty were men, and eighty women. Of the eighty women, sixty-five were mothers, and forty-nine of the mothers had stones, emphasizing the fact that pregnancy has a great deal to do with gall-bladder etiology and also with the severity of the disease. I believe going far back into the history will help us in arriving at the diagnosis.

DR. O. S. FOWLER, Denver, Colo.: I want to discuss Dr. Epler's paper especially with regard to differentiating between the gall-bladder and the kidneys. I do not know whether I properly understood Dr. Epler to say that the pain in the kidney is more constant than in the gall-bladder.

I think that I differ a little on this point. I think the pain in the kidney will be severe while the kidney is out of position, but when the patient lies down on his back, or has the foot of the bed elevated, the kidney pain is much more apt to clear up than that in the gall-bladder. The gall-bladder usually gives pain if something occurs to give an obstruction severe enough to give pain; then that obstruction probably will remain for some days. There are a good many things that can give a pretty complete obstruction of the kidneys that can be relieved by change of posture of the individual. If a patient has been ill for three or four days and you are at sea between the kidney and gall-bladder, the probabilities are it is the gall-bladder, except certain diseases of the kidney, as in a complete blocking, where you would have a large or multiple abscess of the kidney; then there would be very little difficulty in differentiating between kidney and gall-bladder. To me, the kidney gives, in its emptying functions, the most distinct set of symptoms of anything I know of, and I wish to further emphasize what Dr. Brindley has said about a careful history. If you will let the patient tell his history as to how the pain comes on, what he does to bring it on, and, further, what he does to get relief, it will give a most distinct picture. A patient will give a history of pain coming on from certain activities, and usually that involves two or three definite things. If the pain comes on from jolting in automobile riding, in walking down the street, or stepping off the curb, or from horseback riding, or standing up in a wagon, or any heavy work, it is nearly always due to the kidneys, and especially if the pain lets up within a few hours or days, without the development of a serious condition. The gall-bladder, in my observation, has not been nearly so apt to clear up quickly. In the cases of marked pathology, such as Dr. Epler is showing, I think there can be no question of taking out the gall-bladder. The question arises in the borderline cases. I think we are going through a wave, right now, of cholecystectomy. The borderline cases certainly do not have such definite, positive findings. You may recall the article by Murphy, about 1908, where he reported one thousand cases of gall-stones removed without recurrence of the stones. I do not know whether he had a period of following them up completely or not, but at any rate, a man of Murphy's standing published this article. I dare say if a man came across one thousand cases today, they would not recur as we would have taken out all of them.

The stomach is a loud speaker and it has to do the talking for everything between the diaphragm and the external. It may be treated along for years with various diagnoses of stomach difficulty, when there is a very definite lesion somewhere in the abdomen and that lesion can be in practically any organ of the abdomen.

I think Dr. Epler is to be complimented on his specimens and the way in which they are mounted.

DR. CRUM EPLER (closing): I thank you for the discussion. In regard to the kidney pain Dr. Fowler spoke about, time and again I have seen people with renal colic who had been advised to lay a chair down on the floor, put the head on the chair and roll the body around on the floor, in an effort to get relief. Many of these particular types did get relief, but what I meant was the cases with persistent, continuous pain. These displaced kidneys cause pain until the patient moves so the kidney gets back in the place where it belongs.

I hope you will all examine the case of specimens

on exhibit. They are mounted in glycerine and the outside cover cases are glued on by balsam, but, due to the fact that the cover glasses will not lie flat on the other glass, we put the balsam on and then put sealing wax over it as a reinforcement. This is all done prior to the injection of the glycerine, which is done with a large syringe, with small hypodermic needle. Some one asked why we used red sealing wax. There is no significance in that—we used red sealing wax simply because that happened to be the color we had in stock.

EPIDEMIC POLIOMYELITIS—A REPORT OF CASES

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Flagstaff, Ariz.

(Read before the thirty-seventh annual meeting of the Arizona State Medical Association held at Tucson, Ariz., April 19-21, 1928.)

The year 1927 was characterized by an epidemic of poliomyelitis more or less general over the United States. There were more cases reported throughout the country than in any one year since 1916. Comparative figures, according to the United States Bureau of Public Health, show forty-one per 100,000 in 1916 and eight per 100,000 in 1927.

In Arizona, the official figures show seventy-six cases actually reported. Of this number, nine were in Coconino county. Five of these constitute the basis of a report which your chairman asked me to make of an outbreak which occurred in Flagstaff.

May I continue to beg your indulgence for again referring to the United States Public Health and state records for comparative facts? The peak of the epidemic was during September, both for the United States and for our own state, and more than half of all cases reported in Coconino county were during the same month.

It is not the intention of this paper to go into an elaborate study of infantile paralysis. Most of you probably had ample incentive to refresh your memories during the past year. Rather, it is my object to report in a general manner the symptoms and course of this group of cases. The interest in these cases comes from the fact that they were a consecutive number of the rather rare and very severe type of the disease. May I bring to your attention, then, some of the outstanding features of the cases observed by my colleagues and myself during the tragic two weeks that they occurred?

Let me consider first the age incidence. Two cases were between twenty-six and thirty years; the others were fourteen, thirteen and eight years of age. Not one in infancy. An interesting point in regard to the two oldest ones is that they were cousins and the brother of one of them had had infantile paralysis about seven or eight years ago

at the age of sixteen years, with final paralysis of the left arm. As I recall, these cousins had not been together for two weeks previous to their illness. They began and developed simultaneously and died within a few hours of each other. The youngest of the series took sick about six days after his return from California and contact here was not traceable to any of the local cases. This was the last case.

The two girls of thirteen and fourteen years were students in different schools and had not been in contact directly or indirectly. They began within a day and ran parallel courses.

The symptomatology in all cases was very similar. They began with malaise and headache and, in the younger ones, persistent vomiting. The temperature was high, 102 to 104 degrees, and quite constant. The pulse rate at first was very rapid, between 120 and 150, slowed down to 100 or a little slower until several hours before death, when it again became very rapid and thready. One case complained early of pain in the left ear and hoarseness and cyanosis in the same case were so extreme that diphtheria antitoxin was given because it so resembled laryngeal diphtheria.

The disturbances of respiration were the most pronounced symptoms objectively and subjectively. The respirations were slow, shallow and very irregular. They all complained of dyspnea. Cyanosis was extreme. In one case, breathing ceased entirely for periods of minutes and artificial respiration had to be resorted to repeatedly. In every case, towards the end breathing became sighing in character and there was a tendency to yawn. The sensorium was clear until near the end. One case terminated by sudden pouring out of about a quart of foamy sero-sanguinous fluid from the lungs within a period of fifteen minutes. Another stopped breathing suddenly during a period of apparent relief from the severe respiratory strain under which she had labored. Death in the four fatal cases came as a result of respiratory paralysis. There was some rigidity of the neck and all cases developed oculo-motor paralysis as manifested by strabismus and double vision. There was no paralysis of extremities in any of the cases.

Blood counts made in two showed a leucocytosis of 15,000, whereas the spinal fluid cell count in the recovered case was 500 per cubic millimeter.

Treatment was symptomatic in the first four cases, all fatal, as we were unable to secure any serum.

The last case, the eight-year-old boy, was

given fifteen cubic centimeters of poliomyelitis serum, Rosenau, the very first day of sickness as manifested by fever and neck stiffness. The condition became progressively worse and the second day a similar dose was given. His condition continued to get worse. His temperature was 104 degrees, his pulse 150, and he was at the point where it seemed hopeless. At this stage ten cubic centimeters of spinal fluid was removed and thirty cubic centimeters of human immune serum was given intramuscularly. In a few hours his temperature started to drop, his pulse became slower and his eyes started to straighten. Twelve hours later another sixty cubic centimeters of human serum was given and his convalescence was very rapid. In three or four days' time he was back to normal. His recovery was complete. There was no paralysis. This case was seen with Dr. Manning and we are at a loss to know what changed the tide. To all appearances he was within an hour of death as compared with the fatal cases. Was it relief of pressure by removal of spinal fluid, or the use of the antitoxin, or both? Observers who have seen many cases report recoveries of apparently hopeless cases without any treatment before the use of antitoxin in this disease.

Thus ended, as suddenly as it began, this epidemic of cases in Flagstaff.

When the cases were diagnosed the question of closing the schools was very seriously considered by the county health officer, Dr. Manning, and, after advising with Dr. Fahlen, the superintendent of the Arizona State Board of Health, and conference with the county medical society, it was decided to discontinue schools and await developments. The schools were closed for one month, this period extending about two weeks after the recovery of the last case. Whether or not this had any influence in controlling the situation is doubtful, but it was felt to be the safest and the wisest procedure at the time. When we consider that, in every case, children from infancy to adolescence were numerous exposed to these fatal cases, we cannot help but feel that there are some unknown factors in the transmission of the disease.

In conclusion, I wish to express to Dr. G. F. Manning of Flagstaff and to the other physicians of the community, my thanks for their help in preparing this report, and to Dr. E. Payne Palmer of Phoenix for his individual aid in clearing the diagnosis of the first case. Also I wish to thank Dr. Carlson of Jerome for his prompt cooperation in sending to us the human immune serum, which we feel may have had a very important bearing in the outcome of the last case.

THE TUBERCULOSIS HANDICAP

I. D. LOEWY, M. D.
Whipple, Arizona.

(Read before the Thirty-Seventh Annual Meeting of the Arizona State Medical Association, at Tucson, Ariz., April 19-21, 1928).

The return of a tuberculosis patient to a proper economic and social status after treatment and training in an institution, or his home, is of vital importance to him, his family, and the community. If those who have secured an arrest of their lung disease encounter many difficulties, what chances has a still active, or, preferably expressed, quiescent tuberculosis patient of indefinite curability, of readjusting himself into a remunerative and useful life?

The ways and means of rehabilitating a patient with arrested tuberculosis have been worked out to a reasonably satisfactory degree. Rehabilitation begins in the institution, with graduated exercise, suitable instruction, and a work tryout before being discharged, followed by proper placement, under continued medical supervision.

Dr. Edward T. Shields, Medical Field Secretary of the National Tuberculosis Association, states: "The rehabilitation of the tuberculosis patient is essentially a medical problem, but special qualifications and training are demanded of the physician who would be successful in this work—he should have a contagious optimism combined with good judgment that will safeguard the patient in his efforts to come back."

There are three major obstacles which prevent more widespread efforts on the part of all concerned in obtaining an industrial placement of tuberculosis patients.

The first of these is phthisiophobia and is usually the greatest obstacle of all and the most difficult and expensive to overcome. It cannot be overcome except by education in an ever-increasing scope and volume.

The second is fear of reactivation on the patient's part. This is to be overcome by periodic examinations and a proper medical supervision of his work.

The third is securing suitable work. This is to be obtained by co-operation of all the agencies interested, to the end that a more humane viewpoint on the part of employers of labor may be secured.

It is not our purpose to dwell with any length upon the rehabilitation of the arrested tuberculosis patient, but to pass to the main theme of this paper, the rehabilitation of the stationary, probably hopelessly incurable, adult patient.

The selection of patients whom we may advise to go to work, requires the greatest

care, and the results we obtain are directly in proportion to the care exercised.

Many persons are forced by dire necessity to work, regardless of their physical condition or their ability to stand up under the work, and in many instances they are unable, for various reasons, to obtain work properly suited to their ability. Neither are they always able to properly select their work. The results obtained, however, by a careful selection of patients, show that, with proper supervision, much can be done to assist them in overcoming their handicap.

There are two groups of patients whom we desire to encourage to return to useful life, after a definite attempt has been made to achieve an arrest of their disease.

The first group is composed of those whose financial status compels them to earn a part or the whole of their living expenses. They must either secure outside financial aid, which they are loathe to do, or go to work. This class comprises a majority.

The second group consists of those who are financially able to care for themselves without work, but their temperament, ambitions and other factors, especially their inability to secure an arrest of their disease and the futility of further efforts to secure an arrest, discourage them, and useful occupation is welcomed. This group is easily placed and soon become adjusted to their work. They can afford to lay off when necessary and ordinarily are engaged in some business pursuit of their own, and can usually call their time their own. The number in this group is obviously limited.

Both groups require the same selection as to physical ability to do work, but the second group offer no serious obstacles in placement.

Our attention will be directed toward those of the first group, for whom it is more difficult to secure proper work and working environment.

In order to attempt to convey how the proper selection is made, it is, perhaps, appropriate to review to a limited degree some of the pathological processes of adult pulmonary tuberculosis, with special reference as to how they affect our choice.

When the lung of an adult, who possesses an allergy to tuberculosis, becomes affected, it usually is manifested in one or the other upper lobe. A battle then begins between the defenses of the body and the tubercle bacilli. The defenses of the body consist of an attempt to wall off the tuberculosis area with fibrous tissue and calcareous deposits, together with an infiltration of both materials.

Some patients, principally those who have been diagnosed early, and prompt treatment instituted, may recover completely by resolution. Others, by a gradual formation of fibrous tissue and calcareous deposits, overcome their infection and reach what is known as a state of arrest of their disease. This may cover a long period of time and is the result that should be aimed at by all.

Many unfortunate patients become progressively worse in spite of all attempts aimed at their recovery and eventually they succumb.

There is, however, a rather formidable group of patients in whom the disease never quite reaches the state of arrest, in spite of very prolonged treatment. While it appears to be stationary over periods of years, yet it slowly progresses. This progression is rather minute in character, and many of these patients suffer from ten to fifty years before their actual usefulness is ended.

The selection begins in the institution, or after prolonged treatment at home. The patient is first given an extended opportunity to recover, that is, to secure an arrest. Having definitely failed to secure it, the subject of returning to work is then taken up. He must be considered from three points of view, physical, mental and financial, in the order named.

It is assumed that the patient's physical condition has been carefully studied by his physician, preferably the one under whose care he has received his treatment. All recognized means are to be exhausted in attempting to secure an arrest before discharge. The time spent in attempting to reach an arrest will naturally vary with the individual, his age, desires and means. It should not, under any condition, be less than one year and preferably should be longer. The patient should be as free as possible from all constitutional symptoms, especially as regards elevated temperature and pulse rate. The x-ray should show plenty of fibrosis, with no acute extensions. The sputum may or may not be positive. The tendency to hemorrhage should be taken into consideration. Extra-pulmonary tuberculous complications should be absent, or, if present, must be healed. In general, his physical condition and pulmonary status should conform to the classification of a quiescent case indefinitely, with no prospect of achieving an arrest. In endeavoring to convey to you the patient's physical condition, quiescent is the nearest we can come to expressing our meaning, yet this does not wholly cover it. There is, rather, a

stabilization of the patient's disease. He cannot be wholly cured. He cannot be treated any further in a sanatorium or his home. He has exhausted all the scientific means at our command to effect an arrest. He is in fairly good physical condition, but usually in a very poor mental and financial one. Therefore, we have reached the parting of the ways and the most rational thing to do is to permit him to resume his place in the outside world. The patient must be tried out within the institution or home before being released. He must be thoroughly tested by graduated exercise and occupational therapy, supervised and checked, and with work comparable to that which he will attempt. His reaction, both mental and physical, must be noted. His fatigue point must be observed, and care must be taken to adjust his work to keep it within this point. It must be emphasized that short periods of work, interposed with short periods of rest, are better than longer hours of each.

The mental condition is very important, especially toward the new lines of endeavor. Most of our patients who desire to work are the ambitious, nervous and restless class, discouraged from their long and futile attempt to secure an arrest. They require a complete readjustment in their minds to their new relation to the working world. Their ambitions and hopes, blasted by their disease, must be toned down to their new and restricted scope. Their desire to secure great success must be secondary to preservation of a life of usefulness on a lower plane than they aimed at before being taken sick with tuberculosis. Their physical activities will be much more restricted and their social aspirations thwarted. They must aim to become successful in preserving what strength and resistance they have, rather than advancing in a material or social way. Most of our failures are due to over-ambition, overwork and dissipation, because patients have failed to acknowledge to themselves their limitations and have exceeded the limits laid down for them by their advisors.

The working opportunities of those who have ample means need very little comment. There is a scarcity of occupations for the tuberculous with limited or no means, and also serious shortage of employers who will use them. Organized efforts must be made by all interested, to secure a more widespread recognition of the ability of the stabilized tuberculous person to perform useful labor. The absolute necessity for them to have an opportunity to overcome their handicap by earning pay and thus becoming self-supporting is apparent. From this

group of people, many who have done world-wide good have been developed, showing the necessity for continuing this work.

The Technical Series No. 7, pamphlet by Pattison and Jacobs, published by the National Tuberculosis Association in 1927, gives a report of various enterprises whose aim it is to provide employment for the tuberculous. This pamphlet mentions only one project that deals with patients not arrested, viz: the Altro Work Shops, N. Y.

It is believed that, while some of the patients may be left to shift for themselves to secure employment, the vast majority must have it done for them. This can be achieved only by establishing bureaus for this purpose. Communities in suitable locations are most desirable. That this is not impracticable we quote from the above mentioned pamphlet, "Sheltered employment for the tuberculous in America is in its earliest stages of development. It is probably wholesome that there are financial obstacles in the way of more rapid development. It is the hope of the authors of this monograph that it may stimulate other groups to study the need for some form of sheltered employment in their respective communities and to develop such institutions on a sound scale."

The same monograph also states: "It is also perfectly obvious from such community experience as that in Saranac Lake, Colorado Springs, or Albuquerque, New Mexico, where an overwhelming proportion of the population have tuberculosis or have come to these centers because of that disease, that the colonization of men and women handicapped with tuberculosis is not at all an impracticable proposition. Here are cities and villages of a perfectly normal American type, where it is safe to estimate that from three-quarters to nine-tenths of the business is carried on by men and women who have or have had tuberculosis.—Sheltered employment for the tuberculous is a requirement that must be reckoned with by American communities throughout the length and breadth of the United States."

To the communities quoted above may also be added almost every town in Arizona, New Mexico, Colorado and western Texas.

Every town already established should have an agency ready to place the tuberculous in a sheltered occupation.

Contrary to popular belief, the employment should be sheltered and indoors, if at all possible. Actual labor requiring heavy lifting or carrying heavy burdens should be avoided. The more sedentary the occupation the better. Sir James Kingston Fowler, of England, states, "It used to be

thought that the object of sanatorium treatment was to fit a man for 'some light occupation in the open air.' And many medical men seem to be still under this impression. Speaking generally, there are few or no such jobs to be got, and for such as there are the tuberculous man is not very likely to be chosen. By the way, do gardeners look particularly healthy? The determining factor in the choice of an occupation on discharge from a sanatorium was long since seen to be that which gave the greatest return in wages, and that in the vast majority of cases is the one in which the patient has spent his life."

It is much easier to place a patient back at his old trade or occupation, if possible, as he reaches a higher earning capacity sooner and with less effort. If, however, his occupation was too strenuous to be carried on now, he can be trained in a less active though allied occupation.

This paper is a plea for the recognition of a large group of patients who have exhausted the possibilities of an arrest or cure and, being still technically active, must be placed on a self-sustaining basis. There are too many in this class to be left to shift for themselves. We must get under way an organized movement to place him in positions and establish communities where they can provide for themselves. Much has been done in a limited way, but the time is approaching when much greater efforts must be made. This can be done only on a large scale by concerted organization.

Note: Published with the permission of the Medical Director of the U. S. Veterans' Bureau who assumes no responsibility for the opinions expressed or the conclusions drawn by the writer.

THE UTILIZATION OF AUTOPLASTIC BONE GRAFTS IN ORTHOPEDIC AND PLASTIC SURGERY

PAUL RIGNEY, M.D.
El Paso, Texas.

(Read before the El Paso County Medical Society, October 22, 1928).

Though bone has been successfully transplanted since 1809, it was not until the extensive investigations of Ollier, in 1858, that the utilization of bone transplant became of practical value in the treatment of fractures, and it is only this phase of the subject that the author wishes to present in detail at this time.

There seems no absolutely definite proof of the exact role the graft plays, and fortunately, it is not necessary that we dogmatize, on this point of histology, so far as the most practical clinical usefulness of the graft is concerned.

Whether osteoconductive or osteogenetic,

the fact remains that the autogenous transplant is not extruded from the body, that it "takes" in practically one hundred per cent of the uninfected cases where aseptic surgical technic is observed, and therefore supplies a demand that thus far no other substance has been found to meet.

CONTRA-INDICATIONS

(1) All cases where satisfactory results may be expected from the ordinary surgical treatment.

(2) Infection of a violent nature either in the field from which the transplant is to be removed or in the field into which it is to be placed.

(3) Inadequate experience and equipment.

If the same rigid technic is observed in the transplantation of bone, that is observed in abdominal surgery and many other special fields, and if a thorough knowledge of the mechanical needs to be met is applied, then the bone transplant will produce those gratifying results that are received from other fields of surgery.

SOME GENERAL INDICATIONS

(1) Non-union of a fracture of a bone.

(2) Long delayed union.

(3) To replace bone destroyed by infection or traumatism.

(4) To supply bone congenitally absent.

(5) To replace bone weakened or destroyed by either benign or malignant tumors.

(6) To correct congenital or acquired deformities.

(7) To fix in place acquired or congenitally dislocated joints.

(8) To immobilize, support and stimulate repair in spinal vertebrae whose bodies are infected with tuberculosis or other chronic infection where mechanical support is needed.

(9) In persistent non-union of the spine; traumatic spondylitis; neuropathic (Charcot) spine.

(10) In the support and immobilization in cases of tuberculosis of sacroiliac joint; to aid in the immobilization and fixation in erosion of tubercular joints.

(11) In cases of paralytic scoliosis, to support weakened spine and deviation from superincumbent weight or unbalanced muscle pull.

(12) To correct deformities in congenital clubfoot.

(13) As a substitute for all types of foreign substances used in the internal fixation of fractures.

(14) To repair openings in the cranial

bones by removing the external table from an adjacent bone.

(15) To replace with the os calcis the head of the humerus or femur, that has been destroyed.

TECHNIC OF OPERATION

All of the general surgical principles as applied to preparation of operating room, the assistants and the surgeon himself will be assumed, and the special procedure outlined for a classic transplant in the treatment of an un-united transverse fracture of the shaft of a long bone.

(1) With the patient placed in the proper position on a special table with extension equipment, the field is prepared with tincture of iodine and properly walled with sheets, towels or tubes. The incision is ample in length and extends double the distance beyond the fracture over the long fragment. The skin margin is now protected (walled) with towels or sponges, as in the ordinary abdominal operation, after all bleeding has been controlled (though no tourniquet is used). Next, the line of fracture is located and cleared of all soft tissue, the ends of the fragment are cut away with a sharp osteotome, or curetted, and the fragments aligned. With the fragments fixed in this position of coaptation and alignment, the soft parts are retracted and two longitudinal incisions are made, three-eighths to one-half inch apart, through the periosteum, the entire length of the incision through the soft parts. Next, with an electric saw, the graft is cut through to the medullary canal throughout its length and the ends are freed with an osteotome or small circular saw. During the short interval of time needed to control bleeding, the grafts are both placed in normal saline of body temperature. Small holes are drilled on each side of the gutter and opposite each other, the long graft is placed across the fracture line and the short one used to fill the opposite end of the gutter, both being held in place by kangaroo tendon sutures. The periosteum is sutured with plain catgut and the wound is closed without drainage unless there is evidence of some moisture, in which case a few strands of silkworm gut are placed in the angles of the wound for drainage. External fixation is next applied to include the joint above and below the fracture.

SUMMARY

A thorough study of the investigations and reports of the various authorities indicates that the autogenous graft is unquestionably the material of choice in the internal fixation of fractures with bone grafts or foreign materials.

FEVER AND JAUNDICE

(Cabot's Case No. 14042, New England Jour. of Med., Mch. 15, 1928, page 200).

(For case history, see October issue of Southwestern Medicine, page 461).

Yuma County Medical Society.

At the October meeting of the Yuma County Medical Society, this case was discussed, the members present unanimously agreeing that the diagnosis in the case was yellow fever. Drs. Stacy, Lount, Reese, Forrest and Cain were present.

Yavapai County Medical Society and Officers of U. S. Veterans' Hospital, Whipple, Ariz. (Group II).

DR. BAYARD SULLIVAN, WHIPPLE, ARIZ.
DR. IRL THOMAS, WHIPPLE, ARIZ.

(Dr. Sullivan)

We have a case which we believe is a clear cut case of yellow fever. We have a man coming from Jamaica at a time (1897) when yellow fever was fairly prevalent throughout a good part of the world and especially through Central America, South America and the southern United States. The case began with severe sudden headache, and temperature going up to 102.5 and then a slight remission of temperature, which is characteristic of yellow fever. After a few hours the temperature went up again and the patient became jaundiced, with icterus of the conjunctiva and, finally, vomiting of blood, the attack terminating in death in four or five days. As the man gave a history of having had malaria two years previously it was thought this attack was malaria. We believe it likely that the eruption found on the body was due to quinine, which was given until he had ringing in the ears to the point of deafness.

Yellow fever, even today, is the most baffling of all diseases. Within the last few months one of the greatest investigators of the cause of yellow fever lost his life on the west coast of Africa, and one of his chief assistants lost his life a few weeks later, and the true cause of yellow fever has not yet been discovered. At one time Dr. Noguchi announced that he had discovered what he thought was the infecting organism and called it the leptospira icteroides, but it seems this organism is found not only in cases of yellow fever but also in a number of other diseases, so he was not able to demonstrate it as the true cause of yellow fever. Dr. Agramonte, in an article on this subject, stated that Dr. Noguchi had not established to his satisfaction and to the satisfaction of other critics of yellow fever that he had found the true cause; but

he pays him the compliment of speaking of him as one of the most famous and earnest workers known to medicine. A few years ago it was thought that the infection was caused by the bite of the stegomyia mosquito, but Dr. Theobald has described the mosquito causing it and it does not belong to the true class of stegomyia, but to aedes calopus, another species of mosquito. Another thing that was discovered was that a person having yellow fever would not transmit the disease after the third day; in other words, if the mosquito bit a man coming down with yellow fever after three days, it could not transmit the disease. And a mosquito already infected will not transmit the disease before twelve days. The United States Army Commission demonstrated very plainly the incubation period of yellow fever to be six days, rarely over that time. Very little has been determined since that time (about 1900).

We must differentiate between yellow fever and malaria in this case. At that time (1897) the examination of the blood was not perfected to the same degree it is today, but after two examinations of blood, no malaria was found. In the majority of cases of malaria the characteristic symptoms are the typical temperature, chills and sweats, and enlargement of the spleen. In the form of malaria called blackwater or malignant, there may not be these symptoms in which there is vomiting of blood, but in those cases we always see hemoglobinuria. Another similar disease seen in Southern and Central America is dengue. At the present time there is an epidemic in Greece and something like a hundred thousand people are ill with this disease. This disease is transmitted by the sand fly and is sometimes called "break-bone fever," causing severe, intense and persistent pain. The patients describe it "as though their bones will break in two," thus "break-bone fever," or dengue. This rarely, except in severe epidemics, results in death; before death the temperature goes down, and pulse and temperature run a regular course. In yellow fever a diagnostic aid is Faget's symptom or the relation between pulse and temperature. In this case the temperature ranged up to 102.5 to 103, which is characteristic of yellow fever. We do not see 104 to 105, which is very frequent in dengue and influenza. The pulse, which is full and bounding, may go up in proportion to temperature, after a slight remission in temperature, when the patient feels better, (in yellow fever), the temperature rises again but the pulse does not, and then as the

case goes on to fatal termination, as in this case, the temperature goes down and the pulse up.

Differentiating between yellow fever and the jaundice diseases. In acute infectious jaundice, or Weil's disease, the cause of which is the leptospira hemorrhagica, the symptoms come on more gradually and the jaundice is very marked, while in yellow fever the jaundice is not marked. In malignant jaundice or yellow atrophy of the liver, we find, as the name suggests, atrophy of the liver, and icterus or jaundice is very marked. We must differentiate influenza, because of the sudden onset, but in that there should have been typical symptoms and a direct ratio between pulse and temperature. We must also differentiate typhoid fever, which begins more slowly and is not accompanied by severe aching pains, as in this case; also, in typhoid there is the agglutination test and the Diazo reaction is nearly always present. Considering the acute eruptive fevers, especially measles and scarlet fever, we must rely upon the character of the skin eruption which we do not have in this case.

I think I have differentiated from practically all diseases with which yellow fever may be confused, and will sum up the symptoms again: sudden onset, severe headache, chills, achy pains, the peculiar ratio between pulse and temperature with the temperature never so high as in other diseases; temperature goes up, slight remission, up again, and as fatal termination approaches, temperature goes down and pulse goes up; the slight jaundice noticed early and never very marked; the gastro-intestinal symptoms, of slight tenderness in abdomen, not especially characteristic, small amount of blood in vomitus and later on there may be the so-called black vomit; bright red flecks of blood in the vomitus is a characteristic of yellow fever; albuminuria, and not infrequently anuria, which is one of the final stages of the disease. The albuminuria occurs very early in yellow fever, while in typhoid, acute yellow atrophy, or infectious jaundice, it comes on only in the later stage.

These are the cardinal symptoms of yellow fever, and the history of a man being in Jamaica where yellow fever was fairly prevalent at that time, supports our diagnosis. As to whether this was complicated or associated with malaria, we are not able to say, the enlarged liver and enlarged spleen might suggest that.

(Dr. Thomas)

The case has been very well covered by Dr. Sullivan. There are only one or two

points I would like to call attention to. In the history the hemoglobin is given as 92, leukocytes 7,800, which is characteristic of yellow fever. Dr. Agramonte, in an article, states that in most cases the hemoglobin is not less than 90 and may go as high as 105.

The temperature and pulse ratio has been gone into. Another peculiar thing is that when the temperature decreases, the headache ceases, which is one of the diagnostic points. When the temperature became normal the patient said he felt better. At that time evidently most of the quinine had been eliminated and he did not have ringing in his ears. In all of these cases we find much albumin in the urine, and they usually die with suppression of urine, or anuria. In looking up the pathology of yellow fever, I noticed one or two things that may be of interest: there is rarely any characteristic lesion, but there is the characteristic chamois liver, about the color of chamois skin, with areas of fatty degeneration, and practically the same thing, fatty areas in the kidney. In the history this is spoken of as finding fatty casts in the urine which are likely to have come from these degenerated areas in the kidney.

All the other points have been covered by Dr. Sullivan. Our diagnosis is yellow fever.

Discussion by Massachusetts General Hospital.

GEORGE C. SHATTUCK, M.D.

The history of this case points certainly to acute infection. I have not read the necropsy report, but it has been hinted to me that this might be a case of yellow fever. If we are to make that diagnosis we must first of all do what we can to exclude malaria, spirochetal jaundice and dengue.

It is very difficult on the evidence presented here to exclude malaria. A negative blood examination after the taking of quinine for several days would have no diagnostic value. The leukocyte count is normal. One might expect leukopenia with an excess of large mononuclears in malaria. This does not occur so regularly in the early stages as in the later stages of malaria. His fever has evidently been of an irregular character, with sudden onset and apparently a remission and a recurrence of fever on admission to the hospital. That would go well enough with malaria. Toward the end of the examination the spleen is said not to have been much enlarged. An enlarged spleen goes well with most forms of malaria, but it is by no means constant with aestivo-autumnal malaria. On the other hand it is not expected in yellow fever. Malaria might perhaps have been excluded by splenic puncture and examination of the smear from the spleen, if there had been no pigment and no malarial plasmodia found. The rash that the patient had was atypical and does not associate itself with malaria. It is difficult to classify. An important point against malaria is the failure of quinine to control the fever. On the other hand there was vomiting, and we do not know how much quinine was ab-

sorbed. It does not seem that on the evidence given we can with certainty exclude malaria.

We might then take dengue. The sudden onset, the remission of temperature, the headache and chilly sensations all go well enough with that. I find no mention of severe pains in the back and legs which are so common with dengue. They are also common with yellow fever. The rash was not like that of dengue; jaundice is rare in dengue and death is unusual.

Spirochetal jaundice is not ordinarily such an acute disease. It is not as a rule characterized by remissions of the fever. It is not however a disease with which I am to any extent familiar, and I should not be able with certainty to exclude it on the evidence given. The urine seems not to have been examined for spirochetes.

I will then turn to the possibility of yellow fever in this case. This patient came from Jamaica in 1897, before the time when the mode of transmission of yellow fever was known, and when yellow fever was very prevalent in the West Indies. The disease is characterized by sudden onset as in this case. It frequently shows remissions of temperature after the second or third day of the disease and exacerbations of fever later on. It is a disease which is often rapidly fatal, sometimes within a very few days, generally within ten or eleven days. The deaths in the earlier period are from overwhelming toxemia. Those in the later stage are apt to be associated with uremia, kidney changes being common in yellow fever and urine being scanty when the kidney has been much damaged. Jaundice goes very well with yellow fever and is rare in dengue. Some of the other more characteristic features of yellow fever such as the marked flushing of the face and injection of the eyes which one looks for in the earlier days of the disease are not recorded as having been present. However the patient was not in hospital at the time and we cannot trust much to hearsay for the early signs. The frontal headache in the beginning and the vomiting go well with yellow fever. The profuse perspiration is common, although a dry skin is perhaps more frequent. One important point here is the pulse rate. At the onset the pulse rate was 140. One of the features one looks for in yellow fever is continued high or rising temperature associated with a falling pulse. In other words, in yellow fever after a few days a marked discrepancy between pulse rate and temperature develops. The chart on the last days shows a pulse ranging between 88 and 60 with a temperature ranging in the same interval from 103° to 101.6°. The highest dot on the temperature curve is associated with the lowest in the pulse record. The pulse clearly shows a tendency to fall lower than one would expect it to fall with a temperature of that sort. That would go well with a diagnosis of yellow fever. The skin manifestations of yellow fever are in no way characteristic. Rashes of various kinds are found. That which the patient had would not be inconsistent. The vomiting in yellow fever is characteristically black from the presence of blood pigment. Jaundice generally develops after a few days and bile may appear in the urine. Marked albuminuria is expected. On the whole the diagnosis of yellow fever seems the most probable in this case.

Dr. Edward L. Young: Is immediate muscular rigidity characteristic of yellow fever?

Dr. Shattuck: Rigor mortis is marked in death from yellow fever. The albuminuria would go well with yellow fever. One of the features of yellow fever is that albuminuria begins very early in the disease.

Dr. Cabot: Is there more albuminuria than in other infections?

Dr. Shattuck: Yes, there are large amounts of albumin in the urine in yellow fever.

Dr. Cabot: Will you say something as to the present occurrence of yellow fever in different parts of the world?

Dr. Shattuck: In the past yellow fever has been widely endemic along the coast of South America, throughout the West Indies, in Central America and in Mexico. It has frequently invaded the seaports of this country. Severe epidemics of yellow fever developed in Atlantic ports during the eighteenth and nineteenth centuries. In 1793 there was a very bad epidemic in Philadelphia in which the mortality was nearly 10 per cent. of the population. There have been epidemics also in Boston, Providence and Newburyport and in some of the other New England seaports. We find yellow fever fairly common today on the west coast of Africa, and it occasionally appears in parts of northern Brazil. It no longer extends up the Amazon valley as it formerly did. The last Central American outbreak of yellow fever, according to U. S. Public Health Reports Vol. 40 Pt. 1, p. 582, occurred in San Salvador in 1924. There were 77 cases and 28 recorded deaths.

There is some question whether yellow fever in Africa is the same as that in this country and whether it originated in Africa or in this country. The usual opinion is that the disease is the same in Africa as it is here and that it originated in Africa. Apparently it is showing a tendency to spread in Africa toward the interior where formerly it was confined pretty much to the coast. It is curious that in Africa there have not been any severe and widespread epidemics of yellow fever such as have occurred on this side of the Atlantic. There was a small epidemic recently in Monrovia in Liberia with eight deaths. A great deal of work on yellow fever has been done in Lagos on the coast of Nigeria where there is a laboratory which has been financed by the Rockefeller funds. The British also have a laboratory at Lagos. Dr. Adrian Stokes, a well-known and very able Irish pathologist, recently died in Lagos while working on the transmission of yellow fever to monkeys.

The etiology of yellow fever is now again in doubt. In 1901 mosquito transmission was demonstrated by Reed and his associates. A few years ago the work of Noguchi indicated that leptospira icteroides was the cause of yellow fever. A few however continued to doubt. The recent work of Drs. Sellards, Theiler, and Gay in the Department of Tropical Medicine of the Harvard Medical School threw grave doubts upon the validity of Noguchi's conclusions. Theiler was unable to distinguish leptospira icteroides from leptospira icterohaemorrhagiae, and Sellards stated that leptospira is not the cause of yellow fever.

The still more recent work of Professor Oskar Klotz of Toronto, who was sent by the Rockefeller Institute to study the yellow fever of West Africa, materially strengthens the view of Sellards.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD).

Yellow fever.

ANATOMIC DIAGNOSIS

1. Primary fatal lesion.

Yellow fever.

2. Secondary or terminal lesions.

Extensive fatty metamorphosis of the liver.

Fatty degeneration of the liver cells.

Icterus.

Acute lymphadenitis of mesenteric lymph glands.

Edema and congestion of the lungs.

Acute degeneration of the kidneys with some fatty degeneration of cells.

3. Historical landmarks.

Old pleural adhesions.

Dr. Tracy B. Mallory: The anatomical findings in this case are those ordinarily found in yellow fever and were considered by Dr. Councilman at the time as entirely characteristic and as confirming the diagnosis. There was a very slight degree of jaundice evident post mortem. The head and brain were negative. The chest contents were entirely negative. The liver was somewhat small, weighing 1.057 grams. Yellow and red mottling was visible through the liver capsule. On section this was still more evident. Microscopic examination showed it to be due to very extensive degeneration of large amounts of fat. A similar type of degeneration was found in the kidney tubules. The glomeruli were negative. No lesions were found in the intestinal tract or stomach. Very extensive bacteriological work was done, yielding, as might have been expected, negative results.

Dr. Cabot: Could you say that this pathological picture is all in the liver and kidneys?

Dr. Mallory: I believe hemorrhagic erosions and hemorrhages of the stomach are fairly usual, are they not, Dr. Shattuck?

Dr. Shattuck: Yes, they are fairly common.

Dr. Cabot: In the liver and kidneys there is nothing that does not occur in other diseases. Is it the association with an acute infection that makes one able to say that this is yellow fever?

Dr. Mallory: I know so little about yellow fever I should not like to say.

Dr. Richard B. King: Is the jaundice always hemolytic?

Dr. Shattuck: At the beginning it is always hemolytic. Later there is liver damage.

ASCITES AT SEVENTEEN MONTHS

(Case No. 14271, Case Records of the Massachusetts General Hospital, N. Eng. J. of Med., Aug. 23, 1928, p. 380.)

For copy of history, see Southwestern Medicine for October, page 461.

Yuma County Medical Society

At the October meeting of the Yuma County Medical Society, this case was discussed, with diagnostic conclusions as follows:

Dr. Knotts: Syphilis.

Dr. Stacy: Mediastinal growth and syphilis.

Dr. Lount: Meckel's diverticulum.

Dr. Cain: Meckel's diverticulum and pneumonia.

Yavapai County Medical Society and Officers of U. S. Veterans Bureau Hospital, Whipple, Ariz. (Group III.)

DR. J. D. BROOKS, WHIPPLE, ARIZ.

DR. R. N. LOONEY, PRESCOTT, ARIZ.

DR. C. R. K. SWETNAM, PRESCOTT, ARIZ.

(Dr. Brooks)

We have an infant who, up to six months ago, we are told was normal. At the age of one year this child developed an intra-abdominal condition which produced en-

largement, noticeable swelling, listlessness and lethargy, and was so ill she was taken to the hospital where she was kept for three weeks with apparently no benefit. After a period at home she slightly improved but never entirely recovered. Four weeks before this last entrance to hospital she developed similar symptoms, had occasional vomiting, rapid heart, and perhaps some headache. She improved again until this present admission, at which time she had a large and protuberant abdomen, listlessness and a noxious odor. The child was ill nourished, ill-developed, with protuberant abdomen, which prevented palpation of contents, though there was dulness which moved, indicating fluid. Also, if you recall the history, she had tuberculosis on both paternal and maternal sides of the family. There is no direct contact cited, but there is that possibility always in view. Also the child was taken care of by an outside woman while her mother was at work. From the appearance of the child and the fact that she had this terrific odor, excoriations around the buttocks, vaginitis, etc., she evidently had very poor care. What exposure she had from this outside influence we cannot say. Another thing mentioned is enlarged tonsils (and probably adenoids in addition). The physical examination shows an evidently rachitic child, and although they say the ear drums were normal, the history speaks of a sticky brown discharge from both ears at the age of three months. This apparently was superficial and not an otitis, or the drums could not have been normal later. The discharge from the umbilicus is described as a foul-smelling, brown fluid with bubbles. Laboratory examinations of this showed bacillus coli and Gram positive cocci predominating, but no growth. Following the administration of carmine by capsule, the dye appeared through the umbilicus in a little over twenty-two hours, and in the stool in less than twenty-four hours, which would indicate communication between the sinus and the intestinal canal, yet x-ray report states the abdomen was negative. A surgeon called to see this child diagnosed Meckel's diverticulum, advised operation but stated it was too hazardous to do because of the extreme weakness and illness of the baby, and it was postponed. Laboratory examinations of both blood and spinal fluid were negative for syphilis. The blood shows leukocytosis (over 11,000 whites, with 85 per cent polys.), which indicates bacteriological infection of some kind. The urine is negative; in fact everything is negative even the spinal fluid except that it is under excess pressure and contains the maximum amount

of sugar. Perhaps the surgeon was right and there was Meckel's diverticulum draining through the umbilicus; it is a possibility. The protuberant abdomen, with fluid, rachitic appearance, would indicate tuberculous peritonitis. There is also the possibility of malignant disease, with tumor mass in polys. Intestinal obstruction, I think, is merely to be mentioned, as it could have been only very slight, if at all, because everything went through the child, or at least the barium went through. Appendicitis is another thing always to be taken into consideration in abdominal conditions in children. Whether the appendix was a factor in this case, I do not know. Actinomycosis is another thing to be suggested because of the plaque in the mouth. The child had a terminal pneumonia, which was undoubtedly the immediate cause of death. The primary cause or causes I will leave to the discussion of my colleagues.

(Dr. Looney)

If we were called to see a child of seventeen months who had been sick for six months, the most prominent symptoms being abdominal distention, masses felt in the abdomen, listlessness, and umbilical sinus with foul-smelling discharge containing bacillus coli, what would we think of in the abdominal cavity that might cause these symptoms? First, we would no doubt think of Meckel's diverticulum. A consultant made that diagnosis in this case. Meckel's diverticulum with an umbilical fistula leading down to the gut would no doubt cause the foul-smelling fluid and some of the symptoms we have in this case. In my own practice I have seen one case with a Meckel's diverticulum that caused obstruction. This was relieved by surgery and the case recovered. Later on developed umbilical fistula, and when operated to relieve this condition developed general peritonitis and died. Second, we would probably think of appendicitis. The appendix in a child of this age is high up, and a ruptured appendix might cause the symptoms we have in this case. Foreign bodies in the intestinal tract, and volvulus, I think can be passed up with only a mention, as in these conditions, we have constant vomiting. Intussusception might cause some of the symptoms but in this condition there would likely be bloody stools. Sarcoma of the peritoneum or the bowels is to be thought of, but sarcoma is very rare in a child of this age and with the absence of more characteristic symptoms, I think we will eliminate sarcoma. Then we come to tuberculosis peritonitis, which may appear in any age of life. The focus of infection may be near

or it may be far, as from lymph nodes, tuberculous lungs, bones, etc. In tuberculous peritonitis the patient loses strength and weight and becomes listless, and I believe, in all cases we have ascites, which no doubt we have in this case, as the history says there was shifting dulness over the abdomen. Masses of varying sizes are usually felt in tuberculous peritonitis, which may be due to tuberculous lymph glands, or inflammatory condition and kinking or contraction of the omentum. The reaction of tuberculin in tuberculous peritonitis or any form of tuberculosis, in a patient as sick as this child was, is very unreliable. In advanced cases of tuberculous peritonitis some portion of the inflammatory process may develop into ulceration, abscess and fistula. I believe we can eliminate syphilis as we have negative Wassermann reaction, and a spinal fluid with negative colloid of gold. We can not rule out the possibility of Meckel's diverticulum with general septicemia, and brain abscess.

(Dr. Swetnam)

We feel we have had a difficult case because so many of the findings and symptoms seem to us to be contradictory. We have a baby of seventeen months who began six months ago to be sick. The condition came on suddenly, with distended abdomen, lethargy, and possibly a convulsion. After that the child had vomiting and apparently pain in the head. Upon admission to hospital it was in very poor condition, the ribs and enlarged bosses of the head indicating rickets. The child was very ill, had lost weight, had fever, and fairly rapid pulse. The fever ran from 98.4 to 102 daily for ten days or more, indicating infection. Another thing which probably indicates septic condition is the areas of the skin. There is also a leukocytosis. We know there is an umbilical sinus connected with the intestinal tract at some place, proven by the dye coming through. We know that the spinal fluid was under very high pressure, 210 to 220 in a child of seventeen months—Nelson says it should be about 70. The examination of the spinal fluid is very disappointing, so nearly negative, maximum amount of sugar, practically normal protein, globulin increased. Increased globulin indicates only chronic inflammation, not necessarily meningitis, but we have it increased and the fluid under pressure. We must find something that will account for the abdominal condition and at the same time something in the brain or spinal cord that will account for the increased amount of fluid and high pressure, but where the chemical contents of the spinal fluid are

normal. The cell count is only slightly increased—only six they tell us. A distended abdomen and fluid, with feeling of listlessness, certainly indicates some kind of peritonitis. If it is tuberculous we would expect cerebro-spinal irritation of the same kind. There are two things in the examinations which are absolutely against tuberculous meningitis—the high sugar and very few cells. Brain abscess before it ruptures into the spinal canal would give us that spinal picture, high sugar and no cells, fluid clear and sterile. The leukocytosis would also correspond. The picture is typical of brain abscess—beginning with acute symptoms, then quiescent over a period, and suddenly flaring up again. Brain abscess, in most cases, is a result of otitis. There is none in this case as far as we know, but there may have been, as the history quotes an earlier condition of discharge from the ears. This may have gone on to the brain and caused abscess; that form of otitis would cause abscess rather than meningitis. When the infection travels through the bone by eroding its own canal, then penetrates the dura it is apt to cause abscess, and when it enters through a preformed canal such as the internal auditory meatus, it is more apt to cause meningitis. That is a possibility, but we can not read it in when we are told that both ear drums are normal. Another cause of brain abscess is pyemia; we can read in pyemia with a very definite point of infection in the abdomen with chronic irritation in the glands to cause pressure, which is proven by the edema in the feet and hands. We have symptoms in the spinal cord that we do not believe can be accounted for in any other way than by brain abscess.

Our diagnosis is a probable Meckel's diverticulum, a peritonitis, pyemia and brain abscess. (The brain abscess did not have a chance to break into the spinal canal because the child died of terminal pneumonia).

Discussion at the Massachusetts General Hospital.

RICHARD C. CABOT, M. D.

This is the sort of family history that we still take that I think is a waste of pen, ink, and paper. To put down tuberculosis in persons to whom the child was not exposed is according to our present knowledge putting down something that is irrelevant.

I do not know the significance of the white plaque. Sick babies often have such things.

Harrison's groove, etc.,—in other words, rickets. Shifting dullness, of course, if it is correct, and it is a very easy sign to find—is positive proof of fluid in the abdomen of a young child.

We do not know where the masses are.

Miss Painter: They were apparently fecal masses.

Dr. Cabot: I do not know much about children,

but I should think the negative reaction to tuberculin would be of importance in ruling out tuberculosis, unless it is a very virulent process.

In the barium examination I suppose they were thinking of perforated peptic ulcer with peritonitis. There is nothing remarkable in this examination so far as I know.

I do not see how this surgeon made the diagnosis of Meckel's diverticulum before barium was given.

The action of the dye seems to prove that the umbilical sinus is connected with the gastro-intestinal tract.

I do not see that we have evidence of anything wrong from this lumbar puncture fluid.

DIFFERENTIAL DIAGNOSIS

I am out of my beat here. I do not know what is the matter with the baby. We seem to have evidence of a connection between the intestine and the umbilicus, and that seems to point towards a Meckel's diverticulum. There is no evidence of intestinal obstruction, which is the only harm that a Meckel's diverticulum gives, and we have apparently fluid in the abdomen, which I do not know how to explain.

Has the child tuberculous peritonitis? That would explain the fever and the fluid in the abdomen. Ordinarily one feels masses other than fecal masses when a child has a peritoneal tuberculosis, masses especially apt to be around the cecum.

Why are legs edematous? Well, just fluid in the abdomen, if it is marked, by its interference with leg circulation will give edema of the legs. I do not know any better explanation than that.

Could we have a thrombosed vena cava? That would give fluid in the abdomen and edema of the legs. It seems, however, as if it would give more fulminating symptoms than we have here, and I do not see why it should be thrombosed anyway.

Have the vaginitis and vulvitis anything to do with the case? Conceivably, of course, a peritonitis might arise from that region. This might be the fluid of such a peritonitis. But that is a rare thing. The vast majority of those cases do nothing serious to the organism and do not result in peritonitis. I do not believe it.

Almost all children who have anything die of bronchopneumonia. On general principles I think I had better say the child had bronchopneumonia, because almost every dying child does. But that it not a rational diagnosis. It is not the cause of death. It is simply something that babies get after they are weakened by something else.

So I do not know what the baby has. It does not seem clearly like anything that I have named, though I cannot rule out tuberculous peritonitis.

A student: How about the tuberculin test in tuberculous peritonitis?

Dr. Cabot: That is against us.

A Student: Would you have to consider congenital syphilis?

Dr. Cabot: I do not see why.

A Student: If you had cirrhosis.

Dr. Cabot: Yes, syphilitic cirrhosis and fluid in the abdomen. But I think we ought to have other signs. I do not believe anybody could make a diagnosis of congenital syphilis with nothing in the skin, bones, or teeth or about the anus. I think we can rule it out. Syphilis is the most dangerous diagnosis one can make with a pathologist about. He almost never backs it up unless it is in the aorta.

A Student: Do you make anything here of the fact that the dye did not appear in the stools up to that time?

Dr. Cabot: No, I do not know enough about the test to make any inference from that.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Tuberculous peritonitis.

Meckel's diverticulum.

DR. RICHARD C. CABOT'S DIAGNOSIS

Possibly tuberculous peritonitis.

ANATOMIC DIAGNOSIS

Tuberculosis of the lung.

Tuberculous salpingitis.

Tuberculous peritonitis.

Tuberculous ulcer of the ileum.

Abscess of the peritoneal cavity.

Umbilical fistula.

Miliary tuberculosis.

Dr. Mallory: The case is one of tuberculosis with tuberculous peritonitis playing the most important role. There was no Meckel's diverticulum. Also the tuberculous peritonitis was of the dry character, not of the fluid one. The fluid found in the abdomen was restricted to the anterior half. The omentum had walled off the abdominal cavity into two halves, the anterior inferior part of which was a large abscess cavity filled with fecal material, apparently the result of perforation of a small tuberculous ulcer of the ileum. So that the dye which had been fed the patient passed through the ulcer of the ileum into this abscess cavity in the abdominal wall and from there out through the umbilicus. Except for this abscess cavity it was a typical dry type of tuberculous peritonitis with wide-spread adhesions and the surfaces studded with tubercles.

The immediate source of the peritonitis appeared to be a bilateral tuberculous salpingitis. That seemed to be the oldest tuberculous focus except for one in the lung, which probably represents the primary source of infection. Of course the tubular ones were not primary. The course of infection in this case I imagine to be this: a primary infection in the lung going back many months or perhaps half a year, metastatic foci in the tubes at about the same time, extension from that to the peritoneum, miliary tuberculosis following, and then perforation of a tuberculous focus in the ileum and the formation of a septic abscess in the peritoneal cavity, with discharge through the umbilicus.

PROCEEDINGS OF THE FOURTEENTH ANNUAL MEETING OF THE MEDICAL AND SURGICAL ASSOCIATION OF THE SOUTHWEST, HELD AT ALBUQUERQUE, N. M., NOVEMBER 8-10, 1928.

The Fourteenth Annual Meeting of the Medical and Surgical Association of the Southwest was called to order in the Assembly Room of the Elks' Club, Albuquerque, N. M., by Dr. P. G. Cornish, Jr., First Vice-President, on Thursday morning, November 8, 1928, at 10 a. m.

As only one meeting of the Association had previously been held in Albuquerque, in the fourteen years of its existence, and that a number of years ago, the Program Committee had worked assiduously to make this a banner affair, and had expected the Mayor to be on hand to honor the assemblage with an address of welcome. However, the opening of the hunting season and the attendant call of the wild proved too alluring, and

therefore Dr. Cornish, in a few choice words, greeted the visiting members on behalf of the Bernalillo County Medical Society, of which he is President, and expressed the hope that all would have a good time and enjoy themselves to the utmost. Dr. Cornish said "that inasmuch as Dr. Crouse, the President of this Association, has been ill for some time and is absolutely unable to make any trips or take any part in the meeting, it has consequently fallen upon me to take his place. The absence of Dr. Crouse will be very much felt, as he is a man of great ability, of rare energy, and his personality and work in conducting the affairs of this Association have been of the greatest importance ever since its organization. We miss him tremendously and I only wish that he could be with us on this occasion, but inasmuch as he is not, I shall endeavor to preside in his place."

The first number of the program was a lecture by Dr. William Engelbach, Endocrinologist, Professor of Medicine, St. Louis University, St. Louis, Mo. Dr. Engelbach had no prepared address, but delivered an extemporaneous lecture which covered, he said, "some of the simple, pretty well established endocrine disorders, considering only the diagnosis—particularly early diagnosis—and the treatment of these disorders." He first discussed pituitary disorders, stressing particularly the insufficiencies of the pituitary glands. Many interesting slides were shown to illustrate the various points under discussion. One picture arousing special comment, showed two cases—one with underfunction and almost complete absence of the anterior lobe of the pituitary gland, while the other showed just exactly the reverse condition. The doctor called particular attention to the fact that in pituitarism there is a tendency to separation of the teeth, while in thyroidism there is malposition of the teeth, and in hypogonadism, we have small incisors, so that we can usually tell what group a patient belongs in by looking at the teeth. In regard to treatment, Dr. Engelbach said that great strides forward had been made in the past few years and that this depended upon the substitution, as well as can be done, of the affected glands.

Adjournment for luncheon.

The first lecture of the afternoon session was delivered by Dr. H. J. Ullman, Director, Department of Radiology and Cancer Research, Cottage Hospital, Santa Barbara, Cal., who chose as his subject: "Necessity for Team Work in the Treatment of Cancer." Dr. Ullman's prepared paper will be published complete in an early number of SOUTHWESTERN MEDICINE.

The next lecturer, Dr. Dennis Crile, Orthopedic Surgeon, Chicago, Ill., had an extremely interesting paper on the subject "Complications of Pott's Fracture," which covered the ground thoroughly and comprehensively. Illustrated by slides, simple and extreme types of complications were shown.

Dr. Verne C. Hunt, Professor of Surgery, University of Minnesota Medical School, was the next speaker, presenting a paper entitled "Suprapubic Prostatectomy: Its Hazards and Factors of Safety." Indications for operation, preparation of patients for operation and principles of the operation were described fully by Dr. Hunt. His paper, complete, will be published in an early issue of *SOUTHWESTERN MEDICINE*.

Dr. Franklin P. Gengenbach, Professor of Pediatrics, University of Colorado Medical School, Denver, Colo., then delivered a highly entertaining and intellectual lecture on "The Relationship of Pediatrics and Psychiatry." The doctor stated his paper was the joint work of Dr. Franklin G. Ebaugh, of Denver, and himself.

In summarizing, Dr. Gengenbach asserted that "a closer association can be developed between the pediatrician and psychiatrist by:

(1) Consideration of the entire child and his emotional needs.

(2) The teaching of mental hygiene as a part of the regular course in pediatrics in medical school, supplemented by clinics and outpatient work.

(3) The pediatrician should take a leading part in the mental hygiene movement and thereby be a forceful ally in the preventive work in the field of psychiatry.

(4) The pediatrician of the future will need to develop facilities in his practice for the study of the complete child, such as having a social worker and a special nurse for this purpose. Routine mental measurements should be a part of the developmental studies already perfected by the pediatrician.

(5) Both specialties can better serve the public health requirements of the community by closer cooperation and understanding of the guiding principles of behavior study and modification."

Friday, November 9th

The scientific session was called to order at 10 a. m. by Dr. W. Warner Watkins (Phoenix), who presided in the absence of Dr. P. G. Cornish, Jr., unable to be present on account of illness.

The first speaker of the morning was Dr. J. A. Myers, Chief of the Tuberculosis Service, Minneapolis General Hospital, Minneapolis, Minn. In his extemporaneous speech on the subject "Tuberculosis in Children,"

Dr. Myers stated that "our views concerning tuberculosis among children have changed a great deal since a good bit of attention has been given to the disease in childhood." He cited the fact that about eight years ago the Commissioner of Health in Minneapolis who was also Director of Hygiene of the Board of Education, and he, saw a problem in the schools due to tuberculosis among the children, and the reason for being interested especially was that there were 123 boys and girls, of school age, who were excluded from the schools owing to a diagnosis of tuberculosis. Out of this research work and survey, arose the establishment of a special school where these children could be trained while also being treated for tuberculosis, and this has given opportunity for the study of a number of cases both negative and positive. So far, 6,000 girls and boys have been examined, such routine examination consisting of history, physical examination, tuberculin tests, and stereoscopic films in every case. Of the 6,000 girls and boys examined, 3,025 were positive to tuberculin. Positive histories of exposure were given by 1,271. The lecture was illustrated with charts showing particular cases which had come under observation and featured the remarkable work which is being done for the children at the school.

Dr. Karl Menninger, Neuropsychiatrist, Menninger Clinic, Topeka, Kansas, next gave an intensely interesting discourse, choosing as his subject "Psychiatric Study of Four Murderers." In his characteristic way, with graphic presentation of the four cases, Dr. Menninger held the audience spell-bound, and his repeated statement that a psychiatrist is one who endeavors to keep a criminal in confinement under proper observation, rather than one who, as the public seemingly think, tries to get him out of confinement, to escape the consequences of his crime, was accepted.

Dr. N. H. Brush, Neuropsychiatrist, Cottage Hospital, Santa Barbara, Cal., followed Dr. Menninger, reading a paper on "The Internist and the Diagnosis of General Paresis."

The next speaker was Dr. William Engelbach, St. Louis, Mo., who lectured extemporaneously on "Early Diagnosis and Preventive Treatment of Endocrine Disorders." Dr. Engelbach stated that, in order to prevent mental defectiveness in hypothyroidism, we have to go back to the development age of the child; we will have to diagnose hypothyroidism before children are born, in the embryo life.

Adjournment for luncheon.

The first speaker of the afternoon was Dr. Fred Speik, Professor of Medicine, Uni-

versity of Southern California, Los Angeles, Cal., and his subject, "Peptic Ulcer and Associates." Dr. Speik brought out the fact that the great problem in the medical and surgical treatment of peptic ulcer is the frequency of the association of lesions of the viscera of the portal lymphatic system.

The next speaker, Dr. F. P. Gengenbach, Denver, Colo., gave an extemporaneous lecture on the subject "Infant Feeding and Nutritional Cases." Dr. Gengenbach stated that something may be wrong from the standpoint of food intake. "We are all familiar with the lack of iodine in the diet leading to certain disturbances in the thyroid; we are also familiar with the fact that we are made of what we eat; the fetus grows from whatever food the mother takes, and if her food is unbalanced and improper, the fetus does not grow and develop into a normal child at birth, and that emphasizes the necessity of looking after the diet of the mother while she is pregnant. Is it not possible we have not discovered some lack of food element in the mother and in the baby that may lead to some of these other abnormalities?" He also spoke on the advantages accruing to babies from breast feeding.

Dr. Verne C. Hunt, of the Mayo Clinic, Rochester, Minn., the next lecturer, presented a paper entitled "Cortical Abscess of the Kidney," in which he brought out that infection of the kidney is usually one of two types and is transmitted to the kidneys by way of the urinary passages, or is hematogenous in origin and carried by way of the circulation from remote foci of infection.

The afternoon session was concluded with a lecture by Dr. H. J. Ullmann, Santa Barbara, Cal., on "Lead in the Treatment of Cancer."

This paper will be published in an early edition of *SOUTHWESTERN MEDICINE*.

Saturday, November 10th

Dr. Simon Jesberg, Bronchoscopist, Los Angeles, Cal., was the first speaker at the morning session, presenting an extemporaneous lecture, illustrated with various slides, on "Foreign Bodies in Respiratory and Upper Digestive Tract." He described bronchoscope treatment and took pleasure in answering many questions which were asked in regard to methods of removing various foreign bodies.

The next speaker, Dr. John W. Shuman, Professor of Medicine, College of Medical Evangelists, Los Angeles, Cal., presented a paper entitled "Lung Abscess." He started the ball rolling by showing x-ray plates inverted and asking the audience to make the diagnosis. A number of interesting cases were shown on the screen.

The next speaker, Dr. F. P. Miller, Medical Director, Dore Sanatorium, Monrovia, Cal., presented a paper on "Thoracoplasty." He stated that there were twenty thousand cases in the United States in which surgical intervention is indicated, if they can be chosen, and declared the most common complication to be cardiac failure.

Dr. J. A. Myers, Minneapolis, Minn., who was the next speaker, gave an extemporaneous discussion on "Tuberculosis in Children." He described further the methods used with the children in attendance at the school in Minneapolis.

He also said: "From our research work, it has been ascertained that fifty per cent more girls die between the ages of fifteen and nineteen from tuberculosis than boys, and seventy-five per cent more girls between the ages of nineteen and twenty-four. If we will look at the mortality curves from such countries as England and Wales, we will find them gradually declining at that age, so we feel it is a very definite problem that seems to be peculiar to this country. A study of our files has made us wonder why so many of our girls have been infected. We find the energy exposure is tremendous. It is not the school curriculum, but the most tremendous expenditure of energy after school hours, at night. I think we have not given proper education in the schools. Young people are so apt to be swept away by the various fads. Many of these girls absolutely refuse to eat foods which they think will build them up; they have very little reserve, and what they have is soon used up in dancing and running around. This, in a great measure, is responsible for these alarming figures which I have given." This closed the scientific session.

Entertainment

Members and guests were royally entertained by the Bernalillo County Medical Society and the Ladies' Auxiliary of that Society. Dr. H. L. Brehmer, Chairman of the Entertainment Committee, together with the ladies of the Auxiliary, were responsible for a number of enjoyable functions.

The smoker, given Thursday evening in the Indian Room of the Franciscan Hotel, and the dinner dance given at the same place on Friday evening, were well attended and both gala affairs.

Albuquerque, always beautiful and picturesque, seemed especially so at this season of the year, with the fine fall weather, and the trees a golden yellow, and as the scientific sessions were excellent in every way, with a well balanced program, the meeting was thoroughly enjoyed by those in attendance.

Executive Business Session

The Executive Business Session was held in the Indian Room of the Franciscan Hotel, the meeting being called to order at 1:30 p. m., November 10, by Dr. P. G. Cornish, Jr., First Vice-President.

Owing to the necessity for haste, due to departure of several members on an early train, it was decided to forego all business except that of an emergent nature.

Motion was made, seconded and carried that at future annual meetings of the Association, a registration fee of \$5 be charged, such fee to be used by the program committee getting up the meeting.

Invitations were extended by Phoenix, Ariz., and El Paso, Texas, for the next annual meeting. As El Paso had had the meeting in 1927, it was agreed that the meeting for 1929 should be held in Phoenix.

Election of officers followed with the result that the new slate is composed of:

President—Dr. P. J. Cornish, Jr., Albuquerque, N. M.

First Vice-President—Dr. J. M. Greer, Phoenix, Ariz.

Second Vice-President—Dr. J. A. Rawlings, El Paso, Texas.

Secretary-Treasurer — Dr. W. Warner Watkins, Phoenix, Ariz.

Board of Trustees—Dr. Hugh Crouse, El Paso, Texas; Dr. Willis W. Paite, El Paso, Texas; Dr. Willard Smith, Phoenix, Ariz.

Motion was made, seconded and passed that the Chair appoint a committee to draw up resolutions to be incorporated in the minutes of this Society and that copies be sent to the families of the deceased members.

Motion was made, seconded and passed that a resolution be drawn up by this committee and sent to Mrs. Crouse, expressing the regret of the Association at the illness of Dr. Crouse, and extending best wishes.

Motion was made, seconded and passed that the Secretary be instructed to write a personal letter to each of the visiting doctors who lectured at the meeting, thanking them for their interest and the prominent part taken by them.

Motion was made, seconded and passed that a vote of thanks be tendered to the Albuquerque members for their hospitality and entertainment.

The Resolutions Committee was appointed by the Chair, and consisted of Dr. M. K. Wylder (Albuquerque), Dr. J. A. Rawlings (El Paso), and Dr. C. A. Thomas (Tucson).

No further business being brought before the meeting, motion to adjourn was entertained at 2 p. m.

SECTIONAL MEETING OF THE COLLEGE OF SURGEONS

(District of Texas, Arizona and New Mexico.)

Phoenix, February 14 and 15.

The following preliminary announcement of the Sectional Meeting of the College of Surgeons for the states of Texas, New Mexico and Arizona, to be held in Phoenix, on February 14 and 15, has been given out by the Local Committee on Arrangements, of which Dr. Win Wylie is chairman and Dr. E. Payne Palmer is secretary:-

Headquarters will be at the Westward Ho Hotel, where all Fellows of the College, candidates and visitors will register.

First Day, (Feb. 14).

Clinics at the hospitals by Fellows of the College in Maricopa County.

Special clinic and clinical address on fractures by Dr. Charles L. Scudder of Boston, Mass.

Special conference with representatives from hospitals, including doctors, superintendents and lay men interested in hospital work, dealing with problems of the small hospital,—by Dr. MacEachern.

Hospital meeting and Conference, and meeting of the Fellows of the College.

Community Health Meeting for the general public, at which time moving pictures, lantern slides and popular talks will be given.

Second Day, February 15.

Clinics at the hospitals by Fellows of the College in Maricopa County.

Special clinic on Cancer, by Dr. R. B. Greenough of Boston, Mass., with clinical address on Cancer.

Hospital Round Table Conference, conducted for those interested in the details of hospital management.

Scientific Meeting in the afternoon, at which time four or five scientific papers will be given. The general medical profession of the three states are invited to this meeting.

Special emphasis will be laid on the public meeting on the evening of February 14, as one of the important functions of the College is the giving of dependable information to the public on medical questions, particularly in the fields of surgery and hospital care.

More complete details will be given in our January issue.

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DR. W. WARNER WATKINS	Phoenix

AMERICAN COLLEGE OF SURGEONS (Sectional Meeting in Phoenix)

About two years ago, efforts were made by the Fellows of the American College of Surgeons in the southwest, to secure a realignment of the districts in which the sectional meetings of the College are held, so that Arizona, New Mexico and western Texas would comprise a single district. Owing to the objections of the Fellows living in other sections of Texas, the College did not see fit to divide that state. At the meeting of College in Boston in October, the matter was again brought up by Dr. E. P. Palmer, Governor of the College for Arizona. Fellows from Texas again objected to the division of their state, but expressed themselves as perfectly willing for the entire state to be in a district which would include Arizona and New Mexico. To this proposal the Fellows from Arizona agreed, provided the meeting for 1929 be held in Phoenix. This is the arrangement which was perfected, and the Sectional meeting of the College for the new district of Arizona, New Mexico and Texas will be held in Phoenix on February 14 and 15. This should be the most pretentious medical gathering yet held in Arizona. Dr. Charles L. Scudder of Boston will hold the clinical conference on Fractures, and Dr. R. B. Greenough of Boston will conduct the clinical conference on Cancer. Dr. Franklin Martin, president of the College will be present, and other prominent surgeons will participate. This will be the first of a series of sectional meetings in the west, and it is expected that it will be one of the best. Moving pictures and lantern slide exhibits will be brought by the officers of the College for the public meeting. Further details of the meeting will be given in the January issue of this journal.

MALTA FEVER AND INFECTIOUS ABORTION

The proven close similarity between malta fever of goats and infectious abortion in cattle, first demonstrated by Evans in 1918 and since confirmed by many workers, should be a matter of more concern to the medical profession and public health officials of the southwest than appears to be the case. Malta fever is known to be prevalent among the goats of the southwest (Arizona, New Mexico and western Texas) and to be endemic in the human population; also, wherever any investigation of cattle has been made in this district, infectious abortion has been shown to be even more common. Just how frequently abortus infection is transmitted to man is conjectural, but many indications suggest that it occurs more frequently than the medical practitioners realize. After Gentry and Ferenbaugh had proved the existence of malta fever in Texas in 1911 and Yount reported cases in Arizona in 1912, little attention was given the subject in the southwest, until the Phoenix outbreak in 1922 brought the question sharply to the front.

Infectious abortion was known to be present in the dairy herds of the southwest prior to the demonstration of any kinship between the *B. melitensis* and *B. abortus*. The establishment of this relationship has not been given the attention it deserves, either in public health circles nor in clinical practice, in view of the fact that we have both infections constantly present in endemic form. Little is found in American medical publications on this subject, although the European medical journals give it due prominence and the veterinary publications of the United States are full of the subject.

Hadley (Vet. Med., Mch., 1928), in discussing the economic phases from the standpoint of the dairy industry, gives four

possible courses of action, as follows:- (1) Do nothing, and wait for the disease to run its course and die out. (2) Sell off the infected animals as fast as the disease develops; this plan is applicable to a herd hitherto free from infection, following the first outbreak of the disease. (3) Develop an abortion-free herd by gradually segregating the non-infected from the infected. (4) Immune herd, by keeping the herd intact and immunizing the non-infected members. It is impossible to discuss here the advantages and disadvantages of these possible courses, from the dairying standpoint.

Of more immediate interest to the medical profession and the public are the questions of possible dangers through the use of raw milk. These questions are pertinent and it is only fair to say that the profession, as yet, has no adequate answer to give. We know that *B. melitensis* of malta fever is a highly infectious organism, very dangerous to handle even by skilled workers in the laboratory, while the *B. abortus* of infectious abortion is of low virulence and slight infectivity to man. Yet, when once grown the organisms are hardly distinguishable, and we do not yet know under what circumstances the *B. abortus* takes on added virulence. Since the demonstration that *B. abortus* and *B. melitensis* are closely akin, if not identical, many instances of proven transmission of the infection to man through milk or dairy products, have been reported. However, many authorities have raised the very pertinent question, that, since infectious abortion is so prevalent in cattle, why does it not infect man oftener, if it is identical with malta fever? This question deserves a better answer than we are able to give it, though there are three possible suggestions.

Bassett-Smith (J. State Med., Sept., 1927) does not admit the identity of the organisms; he states that massive doses of *abortus* will produce the disease in man, but suggests as more likely that many cattle have contracted real malta fever from goats, and the supposed instances of *abortus* infection from cattle are, in reality, malta fever.

The suggestion that the infrequency of human *abortus* infection may be due to absence of sufficiently massive dose finds some confirmation in a paper by Huddleson (J. Mich. State Med. Soc., Mch., 1927). He states that malta fever produces a mastitis in the goat as the result of which enormous numbers of organisms are excreted in the milk, frequently as high as 25,000,000 per c.c. On the other hand, infectious abortion in cattle produces a mastitis with

relatively few organisms in the milk, never more than 10,000 per c.c. and usually only a few hundreds. The comparative danger from the two diseases may, therefore, be due not so much to the relative virulence of the organisms, as to the number of organisms ingested with the milk.

The third suggestion is that undulant fever from *aborbus* may be much more frequent than we have heretofore supposed, since a low grade fever without disabling symptoms may pass almost unrecognized. This is possible even in true malta fever, as was shown by the survey by Lake in the Phoenix epidemic of 1922, when he found several ambulant cases who would not admit illness. This last suggestion is a very important one for the southwest, where many people with lowgrade febrile disease come for climatic treatment. The very conditions for which they seek relief in the southwest (tuberculosis, arthritis, etc.) would very readily mask an accompanying secondary *melitensis* or *abortus* infection. Two tuberculous patients in the Phoenix epidemic gave positive agglutination in high dilutions, but their physicians would not admit the presence of any other infection than tuberculosis.

We are making no pretense at answering the questions herein raised, but offer them as worthy the serious attention of clinicians and public health officials in the southwest.

DR. JACOB S. EASTERDAY

Dr. J. S. Easterday, a pioneer physician of Albuquerque, N. M., for the past thirty-five years, died on November 29. Dr. Easterday was born in 1854, and was a graduate of the University of Louisville School of Medicine in 1894, coming to Albuquerque in the same year. He has practiced continuously in that city since.

DR. JOHN BRYAN McNALLY

Dr. J. B. McNally, a pioneer of Yavapai County and one of the best known citizens in the county's development, died at his home in Prescott on November 23, from influenza. Dr. McNally was born in 1866. He graduated from the Hahnemann Medical College in San Francisco in 1896, and from the College of Physicians and Surgeons of San Francisco in 1902. He located in Prescott in 1895, and has been for many years the local surgeon of the Santa Fe Railroad. He has been a faithful member of the Yavapai County Medical Society, which organization has passed the following resolutions of respect:

WHEREAS: Death has claimed Dr. John Bryan McNally who for thirty-two years had practiced medicine in Prescott, Arizona, and who was a charter member of the Yavapai County Medical Society; and

WHEREAS: In life he was honored by his fellow practitioners for his ethical methods, revered by his patients, whether rich or poor, for the skill and kindness in the sick room, and cherished by his many acquaintances for his gentlemanly conduct; and

WHEREAS: His unselfish devotion to his profession prompted him to serve suffering humanity often at the expense of his own physical welfare, saving others but not himself;

THEREFORE, BE IT RESOLVED: That his passing registers the loss of a loving husband, a devoted father, an able physician, a loyal friend, a staunch citizen and a conscientious Christian; and

That we, the members of the Yavapai County Medical Society, join with the members of his family, his patients, his friends and citizens of this community in our mutual sorrow; and

THAT the heartfelt sympathy and condolence of this Society be extended to his family; and

THAT these Resolutions be spread on the minutes of this Society, a copy sent to the grieving family, and copies furnished the Daily Press, Southwestern Medicine and The Journal of the American Medical Association.

W. I. LINN,
H. T. SOUTHWORTH,
J. H. ALLEN,
Committee.

EL PASO COUNTY MEDICAL SOCIETY

October 22, 1928.

CASE REPORT

LESLIE M. SMITH, M.D.

Lupus erythematosus disseminatus.

An American woman aged 38, who had had two plaques of lupus erythematosus removed by solid CO₂ two years ago, presented large, scaly, violaceous areas on face, arms, backs of hands, and chest, of four months duration. The eruption was accompanied by some burning sensation. Examination revealed a chronic pelvic infection and infection about the roots of eight teeth, the latter discovered by x-ray. Extraction of these teeth was advised, and the disease during the series of extractions would seem to incriminate the teeth as playing an important part in the etiology of this case. Operative treatment for the pelvic condition was refused. The dentist was advised to do the extractions in series on account of the danger of causing the disease to flare up. One or two teeth were extracted at a sitting with sittings a week or more apart. After each extraction there was marked exacerbation of the disease,

and this was allowed to subside before the next operation. After the last extraction the disease subsided somewhat, and 50 mg. of gold and sodium thio-sulphate was given. This caused an exacerbation, but after eight days this had subsided, and a second injection was given. Since then there have been no exacerbations, and the patient is taking weekly injections of 100 mg., and the disease is disappearing. Extreme care must be exercised in these cases in the removal of foci, and in treatment, as there is danger of generalization of the disease and a fatal outcome. It is best to remove all suspicious foci before beginning the gold injections.

UPPER OBSTRUCTIVE UROPATHY AND THE PROBLEMS PRESENTED

A. W. MÜLTHAUF, M. D.

(An Abstract).

Forms of upper obstructive uropathy were reviewed, and the role they played in the differential diagnosis of the symptom complex referable to the abdomen, was discussed. Special emphasis was placed on the conservative surgery of the renal and ureteral anomalies encountered. Lantern slides were shown of the obstructive uropathy in question, and two unusual cases were presented.

The paper was discussed by Dr. K. D. Lynch who brought out the importance of the necessity of freeing the ureter of adhesion bands in the operation for nephropothesis.

Dr. R. B. Homan showed several x-ray pictures of conditions associated with extensive calcification of the pulmonic tissues. Some were old tuberculous lesions with massive as well as diffuse calcification. One case of aneurysm with heavy calcium deposits was also exhibited.

PERSONALS AND NEWS

DR. MARY LAWSON NEFF, of Los Angeles, will be in Phoenix during the first week in January, at the Hotel Adams. Dr. Neff visits Phoenix frequently for consultation work in her specialty of functional and organic nervous diseases.

DR. R. N. LOONEY, of Prescott, has been appointed physician to the Pioneers' Home, to succeed Dr. J. B. McNally, deceased.

DR. MYRON O. BLAKESLEE, recently appointed superintendent for the new training school for mental defectives at Las Lunas, N. M., has taken up his work at the institution which will be ready for occupancy January 1st. The first duty of the new superintendent will be to select fifty persons from the 153 applicants already on hand, as the first unit of the institution will only accommodate fifty.

DRS. C. H. LAUGHARN, W. R. QUINN and E. J. GUNGLE, of Greenlee County, are said to have been made defendants in a suit for \$30,000 for the death of a boy, upon whom operation was performed in September 1927. We do not have the full details of this report, but usually such suits have little basis and rarely come to trial.

DR. A. T. SMITH of Yuma, a recent arrival in that community, is receiving considerable undesirable publicity over his arrest and imprisonment on charge of violation of the Mann act. One of the reports in the Yuma, Arizona Sun states that this man is reported by the American Medical Association as not being a medical graduate, so far as they are able to ascertain.

DR. GEORGE N. FLEMING, of San Miguel County, N. M., has been appointed health officer for the county, but his appointment has been refused confirmation by Dr. George S. Luckett, director of the Department of Public Health.

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DR. JOHN W. STACY, of Yuma, Arizona, of the firm of Ketcherside, Lount and Stacy, was married in Glendale, Ariz., on November 10, to Miss Mary Daisy Wampler of that city. Dr. Stacy served as resident physician at the Good Samaritan Hospital in Phoenix for several months, leaving there to enter into practice in Yuma.

DR. P. M. SHAVER has resigned as health officer. DR. F. H. JOHNSON, of Carrizoz, will be appointed to succeed him.

THE BAPTIST SANITORIUM in El Paso will not be closed, as was rumored following the defalcation of C. S. Carnes, treasurer of the Southern Baptist Convention board, with more than a million dollars deficit. Dr. Vermillion, superintendent of the sanatorium, states that the institution will remain open and continue its work as heretofore.

THE SOUTHSIDE HOSPITAL at Mesa, Ariz., is conducting a financial drive for \$10,000, for new equipment and to provide a surplus for running expenses. One of the first donations was from Mr. Fred H. Bixby and was for \$1,000.

THE MORRIS-SQUIBB HOSPITAL, at Saford, was damaged somewhat and a nurse seriously burned, when a dish of alcohol ignited and then upset, about the middle of November. Two men who were visiting patients in the hospital, extinguished the burning clothing of the nurse, and also the fire in the hospital.

DR. D. B. WILLIAMS, chief of the division of county health work for the New Mexico Bureau of Public Health, the resignation to take effect on January first, because the state has failed to provide funds to meet his salary and expenses.

Dr. Williams has been a very valuable man, and the state will find it a very short-sighted policy to allow such an official to leave them because of the failure to see that health is purchasable.

GOOD SAMARITAN HOSPITAL OF PHOENIX

(September Staff Meeting)

The Medical and Surgical Staff of the Good Samaritan Hospital met Monday evening, Sept. 24, 8 p. m., at the hospital, for their regular monthly meeting with twenty-one in attendance.

Dr. Stacey reported upon the deaths for the past two months, as follows:

Case 2402, male, 43 years of age. Tuberculosis of the third, fourth and fifth lumbar vertebrae. Developed pulmonary tuberculosis (in hospital?), died 147 days later. History of asthma four to five years, pleurisy eight months ago. Temperature 99 degrees daily for three months, occasional flare-ups for day or so, to 100 degrees. He then ran a stormy course until death. No x-ray records during stay in hospital. Record does not show just what diagnosis was based on. No autopsy.

Case 3488. No history obtainable. Male brought in from auto camp. Had apparently been drinking heavily. Several carbuncles and areas of skin infection. He seemed to be toxic; very dull mentally; temp. 106.8 axillary at death. Leucocytes 17,400, 88 polys. Occasional pus and blood cells in urine; slight trace of albumin. No autopsy.

Case 3511, baby, five days old. Temp. 108 degrees, pulse 280, quickly dropped to 180; blue color. Four to six weeks overdue; fontanelles

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closed. Instrumental delivery with low forceps. Seemed normal until day before death. No other history obtainable. Died about twelve hours later. Diagnosis, acute indigestion, heat contributory. (Impression: Birth injuries? intracerebral?) No autopsy.

Case 3433: Automobile accident, fractured skull. Symptoms, bleeding from nose and right ear, pupils fixed, right larger than left, delirious at first, later comatose. Died third day. Cysternal puncture performed. X-rays showed fracture of right side of skull with separation of right temporal and parietal bones.

Case 3533, baby, three years of age, bowel obstruction. Seen by one doctor, then transferred to another who realized serious condition. Moribund on admission; too ill for operation. Temperature 106 on admission. Died five hours after admission. X-ray findings pointed to obstruction at or near ileo-cecal valve. Positive acetone and diacetic. Blood count, 4,800. No autopsy.

Case 3547, woman, 64 years of age. Dermoid cyst of left ovary. Suspected malignancy of uterus. Ovary and uterus removed, cyst contained hair and muscle fibres. Patient's temperature and pulse rose rapidly after surgery and she died in forty hours. No autopsy.

Case 3573, male. Hemorrhage. Comatose on admission, temperature 108.6 axillary; blood pressure 180; pulse good. Temperature came down to 103 but next day rose again. Never regained consciousness. No autopsy.

Case 3582, male, 59 years of age. Uremia, cardiac hypertrophy and dilatation. Had been ill one month, was en route East against doctor's orders. Brought in in extremis and in comatose condition. Extreme arteriosclerosis; heart greatly enlarged; extreme edema. Died in fifteen minutes. No autopsy.

Case 3589, male. Heat prostration. Expired in fifteen minutes. Comatose, very cyanotic; temperature 107.6 axillary. Examination negative. No autopsy.

Case 3604, male, 58 years of age. Heat prostration. No history except feeling dizzy for several days. Comatose on admission. Temperature 109 rectal. Lived thirteen hours; never regained consciousness. No autopsy.

Case 3505, male. Hypertrophied prostate, uremia, myocarditis and hypostatic pneumonia. Suprapubic cystostomy; died four days later. In hospital one month and ten days. Temp. 106 degrees before death. No autopsy.

Case 3706, male, 32 years, from county jail. Asthma, myocarditis and nephritis. Failed rapidly, died third day. No autopsy.

Case 3656, male, 67. Carcinomatosis of gall bladder and lungs. Lived one week. Vague history of chest trouble for three years. Very ill on admission. Palpable mass in upper abdomen. Fluid removed from left pleural cavity. X-ray showed total density over one base and patching over left lung. Diaphragm immobile; shadows suggest malignant changes. No autopsy.

Case 3700, male, 64. Ruptured gall bladder. Comatose on admission; cyanotic. Died thirty hours after admission. Post mortem showed 280 stones and peritonitis.

Case 3729, male, 32. Fractured ribs and scalp wound. Blood in pleural cavity. Subdermal emphysema; delirious at time of admission, soon became comatose.

Case 3747, male, very elderly. Myocardial failure, urinary suppression, extreme anasarca, (eyelids), ascites, rales in lungs. No autopsy.

Case 3735, male, 18 years of age. Fractured skull and femur. Concussion of brain, comatose; soon died.

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Case 3748, negro, age 30. Gunshot wound in abdomen and arm. To surgery and twelve holes in bowel repaired; local anesthesia.

Case 3749, male, accidental poisoning, probably coal tar product; no history, died in one hour; never conscious. No autopsy.

Case 3765, female, 26 years of age. Salpingitis, bilateral. Operated; many adhesions. Died the following morning, apparently from shock. Thin drainage on dressings which resembled urine. Possibility of bladder injury at operation. No autopsy.

Case 3769, male, 45 years of age. Cellulitis spreading up right arm to shoulder. Streptococcal infection; opened freely. No pus obtained. No autopsy.

Case 3781, female, 44 years of age. Lysol poisoning. Took four oz. lysol shortly before admission. Recovered from shock; died two days later apparently from absorption, with high fever. No autopsy.

Case 3782, male, 49 years of age. Tubercular peritonitis with general edema. Tuberculous testicle removed one year ago; began to go down rapidly. Ascites, edema of limbs and body. Died two days later. No autopsy.

Case 3852 was discussed by DR. VICTOR RANDOLPH, as follows:

Female, 27 years of age, married. Some time after child birth, Sept. 1927, patient had good deal of pain in the legs, diagnosed at the time as sciatica. Had indefinite "rheumatic" pains. In March, 1928, she had considerable fever for a time associated with "rheumatic" pains. Was called intestinal flu. In May she was still having similar troubles. She was seen by C. B. Palmer about this time and he noted spots on the skin of a "purpuric" nature. She was having fever at times and some joint pain. In spite of these she made a trip to Chicago to visit relatives and show them the baby. Shortly after arrival there she began to run considerable fever and to feel weak. She had considerable palpitation. She had also transitory sore spots in her fingers and toes which would last a day or so and then go away. She was troubled with considerable cough without much expectoration. After a good many weeks in different hospitals in and near Chicago she was finally advised to return to Arizona on account of her lungs, although she was told that she had a bad heart. I saw her first on Aug. 15, 1928. At that time she had a troublesome dry cough with slight expectoration, insufficient to obtain adequate sample for examination. Her principal symptoms were continuous high fever, ranging 101 to 103, slight dyspnea on exertion, weakness, frequent nausea, night

sweats, and marked palpitation of the heart. The bowels were regular, but she had at first a rather sharp pain in the left upper quadrant. The menstruations were irregular. She was kept strictly in bed, but no progress was noted in her condition. The nausea and vomiting were somewhat relieved, and the pain in the upper left quadrant went away. Indefinite points of tenderness were found in the fingers and toes at times, but there was no discoloration of the skin. Search was made for petechiae on every occasion, but none were noted. There was at this time leucocytosis, albumin in the urine with hyaline and granular casts and pus cells but no blood cells. Blood culture negative. X-ray report is as follows: Roent-

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genogram of this chest shows cardiac enlargement. There are infiltration densities through the lung parenchyma of the upper lobe of each side with smooth rounded densities in the upper right lobe representing small areas of consolidation. Shadows in the left apex are fairly dense. While these shadows represent some type of lung involvement, they are not characteristic of tuberculosis.

The urine showed granular casts and trace of albumen, but was otherwise negative. WBC., 16,000, 80 per cent polys. and there was no growth on blood culture. The spinal fluid was negative.

The autopsy report which was done by Dr. Mills is as follows: Body of a young woman, short of stature, frail and emaciated. No operative scars or bruises present on body. On removing the calvarium a large blood clot was found covering the right temporo-sphenoidal lobe, extending upwards over the motor area and also over the base into the median fissure. The right temporo-sphenoidal lobe was softened and incision into this area revealed an area of softening with abscess formation involving the greater portion of the lobe. This area is about one and one-half inches in diameter but the outlines are indistinct as there is no evidence of formation of an abscess wall. The other portions of the brain do not reveal any gross pathology. There is no diffuse meningitis. There is no hemorrhage into any of the ventricles.

Chest: The pericardium contains three ounces of straw-colored fluid, not purulent; the walls of the left ventricle are much more hypertrophied; the heart is enlarged to twice its normal size. The tricuspid valve is normal in size; there is some thickening of the valve leaflets, but no recent vegetation or nodules; there is very marked, friable vegetation on the mitral valve leaflets; these extend on to the mural endocardium of the left ven-

tricle and auricle, chiefly of the auricle; aortic valve negative.

Lungs; no free pleural fluid; left lung free from pathology. The right lung is densely adherent to the lateral wall in the region of the inter-lobar fissure. There are, also, many old dense adhesions between the lobes. There is a hypostatic condition in the right lower lobe. This part of the lung still contains air and a section from it floats in water.

Abdomen: Right kidney is normal in size; there is a small red infarct in the cortex. Left kidney is one and one-half times the size of the right. There is a large infarct in the middle part of the cortex and one small cyst near the upper pole. Gall bladder is negative. Liver is negative. Spleen somewhat lobulated, normal in size with numerous infarcts in which there is beginning necrosis. The appendix is post-cecal, sharply kinked. The cecum is so large that with the ascending colon it occupied the larger part of the abdomen; its contents apparently were mostly gaseous. Remainder of the gastro-intestinal tract is negative.

Autopsy tissues: Sections from wall of left auricle show inflammatory deposit on the surface firmly organized and with more recent inflammatory deposit on surface. This layer is very flexible and contains polynuclear cells. Sections of margin of mitral valve with portion of vegetation show fairly recent inflammatory deposition on the surface with round and polynuclear cell infiltration. Some of deeper portions show fibrosis and small areas of calcification. These changes are evidently those of chronic endocarditis with superimposed recent endocarditis. Sections of kidney through one of the red infarcts show marked hemorrhagic extravasation, round cell infiltration and extensive exfoliation of the tubular epithelium.

Dr. Strond said that it was his opinion that after

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a heart was inflamed the organisms might lie there for indefinite periods and become foci of infection for subsequent invasions. The original focus might have been the tonsils or some place else.

Dr. O. H. Brown said that he disagreed with Dr. Stroud in that the heart valve could be focus of infection. The fact that the valve has had one involvement makes it easy for subsequent invasion, but it seems unlikely that it would be a harbor of bacteria for any great length of time. There are other places in the body that are more likely to harbor bacteria for long periods of time and these places are sometimes very difficult to discover. He said that he recalled a young man who had a serious heart involvement as well as a serious kidney condition for which at first no focus of infection could be discovered. After repeated examinations it was finally decided that the tonsils were the focus of infection. There was redness of the anterior pillar, but otherwise the tonsils appeared absolutely innocent. The man became so seriously ill that he had convulsions and bloody urine for many weeks. His heart dilated so that it looked like he would die; subsequently he improved and was allowed to go home. Then he developed an acute tonsillitis and the kidney and heart both became as bad as when he was at the hospital. The tonsils had white patches upon them; these were pointed out to the family and physicians in the case and it required no argument to get them removed. The tonsils were removed and the boy made a speedy recovery. The lesson from the case was that one should not be contented until he finds the focus of infection.

Dr. Randolph said the tonsils in the case he reported had been removed 8 to 12 years ago. He believed that the infection from the heart was not likely to light up again without subsequent invasion from other foci.

Case 3608 was discussed by DR. F. C. JORDAN:

Female baby, born July 26, 1928. Normal delivery, cried spontaneously and appeared normal with exception of the right foot and ankle. These were entirely denuded of skin except a strip of normal skin on the superior and inferior sides of the foot. There was a sharp line of demarkation between the healthy skin and the denuded area. There seemed to have been a constriction around the ankle as if the cord had been rapped around it. The shutting off of part of the blood supply and sloughing of the skin below could have been caused by a constriction around the ankle. The denuded area was beefy red in color and bled easily if touched. There was one small vesicle about one-fourth inch in diameter upon the other leg. Otherwise the skin appeared normal. Sterile dressings were put upon the foot and ankle; these were kept on with difficulty due to the rubbing of the feet together. Within 24 hours, large blebs had developed upon the other leg and foot, both hands and forearms, and upon the lower gums extending underneath the tongue. The lips were also excoriated and it was necessary to feed the baby with a medicine dropper. The blebs were punctured and ammoniated mercury ointment (one per cent) applied. Pasteboard cuffs were put on outside of the dressings to keep the parts from being rubbed by each other. She was brought to the hospital on the third day, and the affected parts dressed twice daily. She was given sulpharsphenamine intramuscularly as it looked more like a congenital syphilis. This, however, was not repeated for Wassermann on both mother and child were negative and culture from the blebs showed a pure culture of staphylococcus. There was a gradual improvement in the skin condition. The temperature which had been 103.2 on the second day in the hospital, gradually came down to a max-

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—Sir Henry Gauvain, M.D., M. Chir. (Cantab.), in his introduction to J. Bell Ferguson's "The Quartz Mercury Vapour Lamp."

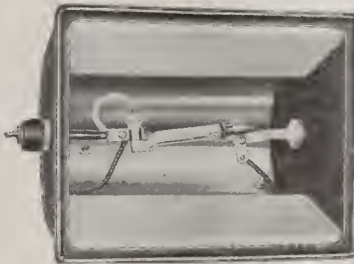


SIR HENRY GAUVAIN is known internationally for his contributions to medical literature, particularly with reference to ultraviolet therapy. In England, at Hayling Island and Alton, he has combined the work of Finsen and Rollier, and utilizes both natural and artificial sources of light; the artificial source because he realizes that atmospheric conditions in that climate are not comparable to those of a Swiss village some 4700 feet above sea level.

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where the maximum biologic effects are realized.

Consider, too, the consistent operation of the *Uviarc* for hours at a time without attention; no smoke, no soot, no fire hazard. From the standpoint of economy, consider the large quantity of ultraviolet radiations in proportion to the electrical input, which in turn means also the conservation of time by shortening considerably the treatment period for a given dosage; furthermore, no special wiring is required for its installation.



Showing Interior of Reflecting Hood of Victor Air-Cooled Quartz Lamp.

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imum of 99.2 on the seventh day. The skin also gradually improved, some lesions entirely drying up. On the eighth day, the temperature reached 101, on the ninth it was 102.6, when she was given another dose of sulpharsphenamine for the tonic effect of the arsenic. The temperature rose to 104.2 and gradually came down through the night. The following morning, the child seemed to be in a stupor; it had subnormal temperature, irregular respiration and imperceptible pulse. Intraperitoneal injections of 100 c.c. of normal saline were given, also other stimulants, but to no avail. Necropsy was refused.

Pemphigus neonatorum is a highly infectious disease of the skin, characterized by numerous large thin blobs. These blobs usually show staphylococcus on culture.

It was described as early as 1610 by Forastus. Krause reported several epidemics in 1773. It is more often seen in hospitals where large numbers of new-born are cared for. It occurs in two types, the benign and malignant. The benign type is much more common. It usually develops between the third and eighth days and is characterized by the sudden appearance of vesicles or blebs, occurring more commonly in the groin, axilla and on the neck, also on the back of the hands. The palms of the hands and soles of the feet are usually exempt. The benign cases usually clear up in from three to six weeks. The malignant cases develop more rapidly, involve a much larger area with grave constitutional symptoms and high fever, and are usually fatal.

Treatment: All cases should be kept under strict isolation. The nurses should use rubber gloves, strong antiseptics and never handle any other baby while taking care of such cases. Local applications of mild antiseptic ointments—one per cent ammoniated mercurial ointment being one of the best. In the malignant cases, no form of treatment has been found to be satisfactory. Three types of treatment were tried on this case, the ammoniated mercurial ointment, one per cent neutral acriflavin diluted five times, and a calomel boric acid powder. No marked difference could be noticed in these different treatments. The powder treatment seemed to be better in the latter stages as the lesions were drying up. This case was not a typical pemphigus as it, no doubt, began in utero. The involvement of the sole of one foot and the palms of the hand was unlike pemphigus. Its appearance was more like congenital syphilis of the bullous type, so sulpharsphenamine was given in spite of negative Wassermann on both mother and child. The finding of pure staphylococcus in the blebs helped to rule out syphilis.

The exact cause of death could not be explained because there was an improvement of the skin lesions. Many were drying up and no new ones were forming. It did not seem that the sulpharsphenamine could have been a factor as the first dose did not cause any reaction, and the second dose, given eight days later, was a much smaller dose, and should not have caused the severe reaction that came the day before death.

Question: Was blood culture made? Ans.: No.

Question: Was there a urine examination? Ans.: There was none.

Dr. Clohessy said that this was a case of pemphigus neonatorum; he said that in an epidemic in New York it was found that the infection was being carried both by the mother and the nurses, probably a blood infection with staphylococci; he wondered if this case could be such.

Dr. Sharp said he often wondered why we do not have more infections when we consider the number of infected cervixes through which the babies have to come. Recently a woman who had

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acute tonsillitis was confined and the baby came with no infection.

Dr. Berger said that in a true pemphigus no bacteria can be found in the blebs. He believed in this case the arsphenamine should not have been given. He asked if crusts formed on any of the lesions.

Dr. McIntyre said because of the many infections developing in maternity wards, investigations have been made as to the value of antiseptics and it was found that two per cent gentian violet was more effective than any other.

Dr. Sharp said that he recently had seen a baby with the infection in which 50 per cent alcohol was used.

Dr. Clohessy said he believed saturated boric acid as good a disinfectant as any other one.

Dr. O. H. Brown said he could not be convinced that there were not allergic phenomena present with this baby. He said that the condition of the leg reminded him of an angino-neurotic edema which is now known to be allergic in nature. The fact that the death followed the second dose of arsphenamine when the baby appeared to be doing well may support this suggestion.

Dr. Jordan said that there were some slight crusts over the lesion, but they were very thin. He said the proper diagnosis of this is empetigo but is called pemphigus.

ORVILLE HARRY BROWN, Secy.

(Continued next issue)

MEDICAL PROFESSION OF WESTERN HEMISPHERE TO CONGRESS IN HAVANA

The next congress of the Pan-American Medical Association will be held in Havana, Cuba, from December 29, 1928 to January 3, 1929. The program which is being arranged by the President, Dr. Fred H. Albee of New York City, will be a strong one, and will include four orations, upon the subjects of surgery, medicine, pediatrics, and tropical medicine.

Dr. William J. Mayo will give the oration on Surgery, and Dr. Lewellys Barker of Johns Hopkins University the oration on Medicine. Papers will be read in both Spanish and English.

This congress will be representative of the medical profession of the entire Western Hemisphere. Chapters of the Association have been and are being organized in various centers of North America and Central America, as well as in the Antilles, all of which will be represented at the Congress.

One of the recent accomplishments of the Pan-American Medical Association is the establishment of the Pan-American Hospital in New York City for the benefit of the Latin-speaking people.

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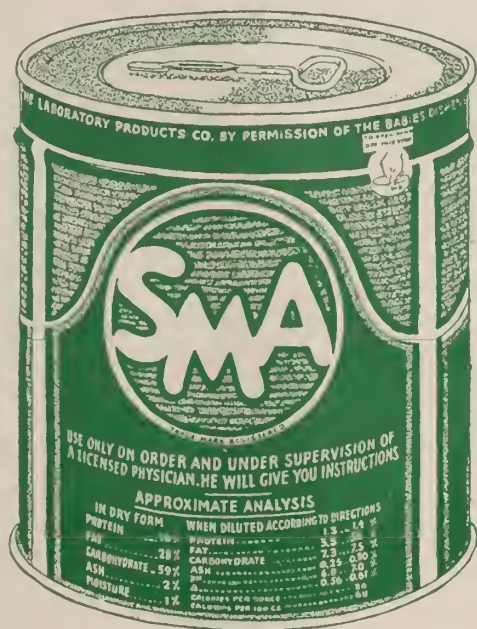
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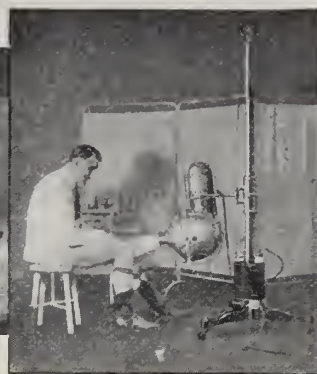
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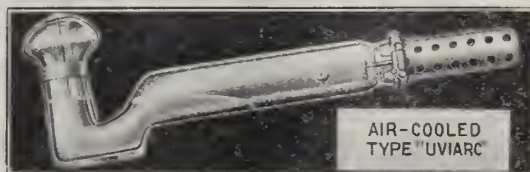
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From a paper read before the Southport Division of the British Medical Assn., March 30, 1928. (British Med. Jour., July 14, 1928)



Reprint No. 587 of the above article in full will be sent on request.

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W. T. Dodge.....	1928.....	Big Rapids	Frank Kelly.....	1931.....	Detroit
J. B. Jackson.....	1932.....	Kalamazoo	Wm. E. McNamara.....	1932.....	Lansing
F. C. Warnshuis.....	1931.....	Grand Rapids	Arthur M. Hume.....	1928.....	Owosso
A. P. Biddle.....	1930.....	Detroit	W. McCutcheon.....	1930.....	Cassopolis
MEDICAL EDUCATION		TUBERCULOSIS			
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Hugh Cabot.....	1931.....	Ann Arbor	E. N. Nesbit.....	1932.....	Grand Rapids
W. H. MacCracken.....	1932.....	Detroit	W. H. Winchester.....	1928.....	Flint
HOSPITAL SURVEY		VENEREAL PROPHYLAXIS			
Richard R. Smith, Chr.....	Grand Rapids		W. F. Martin, Chr.....	1931.....	Battle Creek
J. Walter Vaughan.....	Detroit		W. G. Plaggemeyer.....	1932.....	Detroit
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JOINT COMMITTEE ON NURSING EDUCATION		MEDICAL HISTORY			
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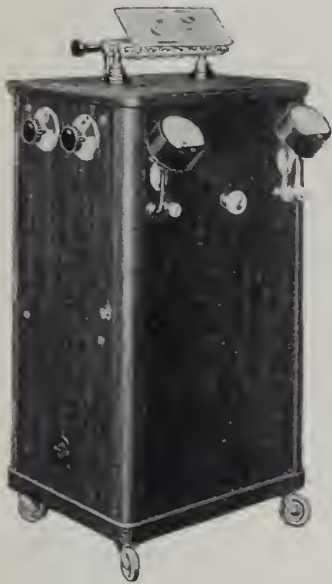
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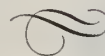
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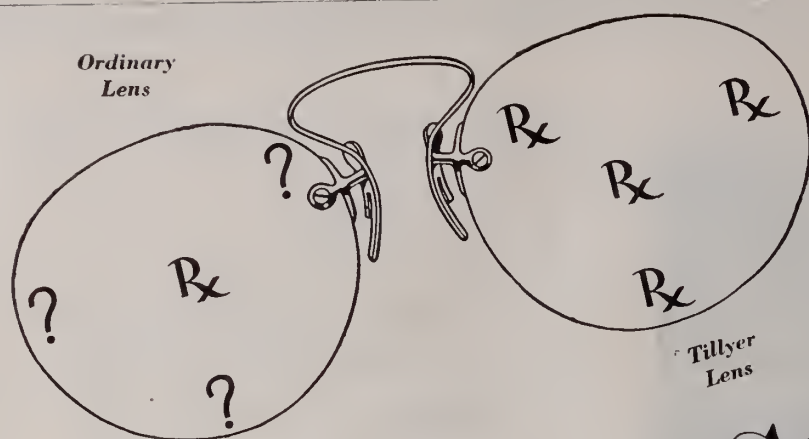
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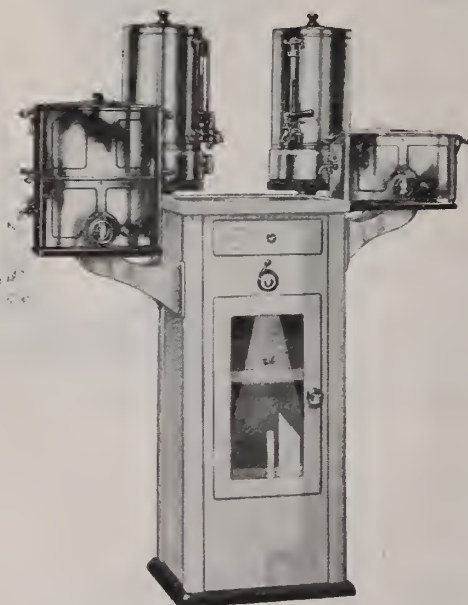
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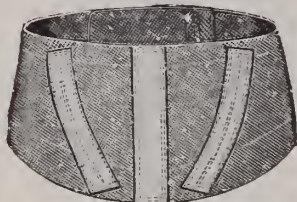
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The Secretary of the Society will please notify the State Secretary immediately of any errors or change in these offices.

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